2001 Southwest Area Fire Weather Operations Plan

TABLE OF CONTENTS

TABLE OF CONTENTS (cont.)

PREFACE

The National Weather Service (NWS) offices in the Southwest Area request assistance of the land management agencies in providing them with much needed reports of significant weather events.

The following is a guideline of significant events that would be of value to the forecaster:

1. Snow accumulation of 2 inches or more and additional calls for each 2 inch increase.
2. Total snow depth following a winter-like storm.
3. Snow, fog, rain, wind or other natural phenomena which may cause roads to become impassable.
4. Water running bankfull or greater in streams or arroyos.
5. Funnel clouds and tornadoes.
6. Freezing rain accreting to surface.
7. Hail half-inch or greater in diameter.
8. Wind damage from thunderstorms.

The above is only a guide, and any call reporting significant weather will be appreciated. We request that a call be placed to the nearest NWS office via the numbers listed starting on page 65. These numbers are answered 24 hours daily.

Note: Please bring any corrections or additions to this operations plan to the attention of Richard Okulski, NWS Tucson.

I INTRODUCTION

This document is the fourth annual Southwest Area Fire Weather Operating Plan, and serves to consolidate documentation of all fire weather services provided by the NWS to USFS Region 3. This consolidation is part of the further Modernization and Restructuring (MAR) of the NWS, under which fire weather services provided to the Southwest Area will become more standardized over the next several years. *Due to the continuing changes within the NWS, this operating plan will be somewhat of a living document, and parts of it may need to be updated before the issuance of the 2002 plan. In the event that this is necessary, affected agencies and locations will be notified and addendums to the operating plan issued, with coordination through the Southwest Area Fire Weather Working Groups.*

The basic format of this operating plan will be as follows: General information pertinent to services provided to the Southwest Area will be presented first, followed by information specific to certain areas and/or NWS offices. The national agreement will follow towards the end of the plan, as will a reference guide with an overview of fire weather services and NWS contacts in the Southwest Area. **Users of this publication must understand that information contained within the "General Information" section may or may not completely apply to them at this time.** The intent of this format is that, over time, this "General Information" section will become more specific and applicable to all fire weather services provided to the Southwest Area, while the "Specific Fire Weather Services by Area" section will gradually shrink.

Important Changes and Clarifications Since Last Year

- **WRSpot Internet based spot forecast request/reply program implemented Region wide 4/1/01.**
- **Wind speeds in all Fire Weather forecast products shall use 10 minute averaging at the 20 foot level.**
- **The minimum sustained wind speed for Red Flag Warnings has been changed to 20 mph using the 10 minute averaging 20 foot level standard(RAWS observation sites).**
- **Arizona forecast offices shall include a wind speed and direction for sustained wind speeds forecast to be in excess of 15 mph in the 3 to 5 day forecast.**
- **New formats for a few offices (conform to national standards).**
- **New IMETs in several offices.**
- **Satellite dishes (ATMU Lites) on site at Tucson, Flagstaff, and Las Vegas.**

II GENERAL INFORMATION

A. National Weather Service Organization

Contained in the mission of the National Weather Service office's in the Southwest Area is the issuance of forecasts and warnings of events that may be hazardous to the lives or properties of inhabitants, or that may otherwise significantly affect normal activities. These issuances include both routine and special forecasts and advisories for the general public and for several high-impact user groups. Wildland fire management interests are included in the latter category.

To accomplish the total forecast and warning mission, NWS offices are continuously manned by a duty staff which includes one or more professional meteorologists. Routine fire weather support is generally provided year round from roughly 7 am to 4 pm, but expert meteorological advice is available 24 hours per day, 365 days per year.

To assure adequate two-way communication between the core forecast staff and specialized user groups, certain forecast staff personnel with intimate knowledge of user group needs are designated as "Program Leaders". These meteorologists maintain most of the liaison and administrative contact between NWS offices and the specialized user groups, such as the various land management agencies that have wildland fire management responsibilities.

The Fire Weather Program Leaders for the NWS offices in the Southwest Area are listed in the reference guide at the back of this operating plan. Queries regarding procedural matters, details of the fire weather program or equipment, special operational needs, et cetera, should be addressed to the program leader of the appropriate NWS office, or to that office's Meteorologist-in-Charge (MIC). Routine fire weather support will be provided by the core forecast staff, or by the fire weather forecaster or program leader, with overall program and forecast coordination directed by the program leader. On-site fire support will be accomplished by the IMET from the nearest NWS office, when possible.

B. NFDRS Fire Weather Observations and Forecasts

Fire weather observations are taken daily at around 1300 LST (1400 LDT). Observations from Remote Automated Weather Stations (RAWS) sites should be the latest data available from the satellite interrogation. All observation stations for which forecasts are made are assigned a 6-digit NWS station identification number. The first two digits indicate the state, the second two digits the county, and the last two digits are the consecutively assigned station numbers for that county. *The appropriate NWS office must be contacted for assignment of a 6-digit number for any new permanent station, or for any changes in location made to existing stations which already have an NWS ID number.* In addition to the 6-digit NWS ID, RAWS sites are assigned an 8 character identifier based on satellite data transmission time. These platform identifications are assigned by the National Environmental Satellite and Data Information Service (NESDIS). Observations from a

RAWS will be entered automatically into WIMS under the NESDIS platform identifier, but must be entered manually by 1350 LST (1450 LDT) under the 6-digit NWS station number for NFDRS calculations. **A listing of NFDRS observation stations is included, by state, in section IV of this operating plan.**

Fire weather observations for stations which require forecasts must be entered into WIMS no later than 1350 LST (1450 LDT). The observations are subsequently retrieved from WIMS by the forecaster via the Advanced Weather Interactive Processing System (AWIPS) computer, and used to prepare the daily NFDRS zone trends forecasts. WIMS sends the collected observations to the NWS in two tabular files, one at 1330 LST (1430 LDT) and the other at 1400 LST (1500 LDT). Observations not received in either one of these files (i.e. not resident in WIMS by 1350 LST/1450 LDT at the latest) will not be available to the NWS for issuing NFDRS forecasts. If the NWS does not have observations for a zone, forecast trends cannot be issued. **The bottom line is that the NWS cannot produce NFDRS forecasts if the observations are not entered into WIMS by 1350 LST (1450 LDT).**

Fire weather observations are used in producing the NFDRS zone trend and station forecasts, and are the basis for the observed and forecast fire danger indices. Therefore, it is paramount that the observations are as accurate and complete as possible. An incorrect observation can result in a poor forecast, false fire danger indices, and errors in climatological records.

1. Observations Format and Sample Observations

The observation format and a sample observation as it appears on the AWIPS collective follows:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Batdraw	**293101**	**970501**	**11**	**0**	**3**	**72**	**47**	**42**	**2**	**2**	**149**	**6**	**15**	**72**	**50**	**85**	**33**	**2**	**0.17**

Explanation of Observational Items

1. Station Name.
2. 6-Digit NWS Station Identification.
3. Date (year,month,day).
4. Hour of Observation
5. Observation Type (O) . The forecast (F) collective will be inserted in this position.
6. State of Weather at Observation Time.

0 - Clear, less than 1/10 cloud cover
1 - Scattered clouds, 1/10 - 5/10 cloud cover
2 - Broken clouds, 6/10 - 9/10 cloud cover
3 - Overcast, more than 9/10 cloud cover
5 - Drizzle*
6 - Rain*
7 - Snow of sleet*
8 - Showers

Explanation of NFDRS Observation Items (cont.)

4 - Fog **9** - Thunderstorms

* These entries, if entered as a forecast, will reset fire danger indices to zero.

7. Dry Bulb Temperature.

8. Dew Point Temperature.

9. Relative Humidity.

10. Yesterday's Lightning Activity Level (LAL). Use observed LAL for the entire day, midnight to midnight (see Table 1, pg. 6)

11. Morning Lightning Activity Level. Use observed LAL from midnight to observation time today.

12. Wind Direction (**from** which the wind is blowing), reported in whole degrees.

13. Wind Speed (mph) for 10 minute average at the 20 foot level.

14. 10-hour Time Lag Fuel Moisture.

15. Maximum Temperature. Enter the highest temperature last 24 hours. The value cannot be lower than the current dry bulb temperature.

16. Minimum Temperature. Enter the lowest temperature last 24 hours. The value cannot be higher than the dry bulb temperature.

17. Maximum Relative Humidity. Highest RH in percent during last 24 hours.

18. Minimum Relative Humidity. Lowest RH in percent during last 24 hours.

19. Precipitation Duration. Enter total time in hours (cumulative number of minutes converted to hours) that precipitation occurred in the last 24 hours. If none, enter a zero "0". A minus sign is used to indicate wet fuels at the time of observation

20. Precipitation Amounts. Enter total precipitation accumulation during last 24 hours. In one, enter "0" (zero); if a trace, enter "T". (If at least T entered then duration must be at least 1.)

TABLE 1

LIGHTNING ACTIVITY LEVEL GUIDE FOR FIRE WEATHER OBSERVERS

LAL	Cloud & Storm Development	Areal Coverage	Individual storm cell -cloud to ground lightning discharges Counts [1] cg/5 min	Counts cg/15 min	Average cg/min
1	No thunderstorms	---	---	---	---
2	Cumulus clouds are common but only a few reach the towering stage. A single thunderstorm must be confirmed in the rating area. The clouds mostly produce virga but light rain will occasionally reach ground. Lightning is very infrequent.	< 15 %	1-5	1-8	<1
3	Cumulus clouds are common. Swelling and towering cumulus cover less than 2/10 of the sky. Thunderstorms are few, but 2 to 3 occur within the observation area. Light to moderate rain will reach the ground, and lightning is infrequent.	15 % to 24 %	6-10	9-15	1-2
4	Swelling cumulus and towering cumulus cover 2-3/10 of the sky. Thunderstorms are scattered but more than three must occur within the observation area. Moderate rain is commonly produced, and lightning is frequent.	25 % to 50 %	11-15	16-25	2-3
5	Towering cumulus and thunderstorms are numerous. They cover more than 3/10 and occasionally obscure the sky. Rain is moderate to heavy, and lightning is frequent and intense.	>50 %	>15	>25	>3
6	Dry lightning outbreak. (LAL of 3 or greater with majority of storms producing little or no rainfall.)		---	---	---

[1] Cloud-to-ground lightning discharges

2. Zone Trend Forecast Format and Sample

Forecasts of specific parameters needed to compute "tomorrow's" fire danger indices at certain locations are issued daily during the fire season. The forecast will be entered into WIMS via AWIPS for generating forecast fire danger indices for the following day. Using the ~ 1300 LST (1400 LDT) observed weather, a forecast of specific parameters for the **same time the following day** are entered into WIMS. Most often this forecast will be made with the ZONE command as outlined below. *In Texas, and in rare instances in New Mexico or Arizona, the FCST command will be used to forecast specific values for the various parameters, instead of trends. The format of forecasts made with the FCST command will be the same as those made with the ZONE command, except that the parameter trends will be replaced by specific values.*

Zone Command

The ZONE command is designed to simplify the work of the weather forecaster. The ZONE command specifies a trend for values which can be applied to every station in the zone. When the forecaster enters a ZONE command, the trends are automatically applied to all current observations for stations located in that zone. Then WIMS generates a forecast for each station, just as if the forecaster had entered separate forecasts for each. The zone command can also be used for a single station in the zone.

If the current day's observation for a station is not entered into WIMS prior to the zone forecast, a forecast for the following day will not be available for that station. A forecast will not be issued for zones which have no current observations.

Explanation of Zone Operands and Example Forecast

Trend values in fire weather zones are the 24 hour changes from observation time today to the forecast valid time tomorrow. Decreasing or lowering trends are preceded by a "-" sign. No change is indicated by a "0" (zero). Each entry is separated by a comma. When an entry is missing, then no forecast is made for that element. An explanation of the entries and a typical forecast are shown on the next page.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

ZONE # DATE VT W DBT RHT AL TL WS 10 , , , , , PD1 PD2 W/D

Example: ZONE, 307, 000410, 13, 1, 2, -4, 2, 3, 11, -l, , , , , 0, 0, N

Zone Trend Entries

1. ZONE is the command for WIMS
2. Zone number
3. Date for which forecast is valid (tomorrow's date)
4. Valid time of the forecast

NFDRS Zone Trend Entries (cont.)

5. State of the weather at the valid time (not the prevailing weather during the 24 hour period). Forecast elements are the same as the observational elements found on pages 4 and 5.

6. Dry bulb temperature trend

7. Relative humidity trend

8. Afternoon LAL (from observation time till midnight)

9. Tomorrow's LAL (from midnight tonight till midnight tomorrow night)

10. Wind speed trend in MPH for the 20 foot wind (10 minute average).

11. 10 hour timelag fuel moisture trend in percent.

12. Missing entries between the commas are the max. temperature trend, min. temperature trend, max. RH trend, min. RH trend.

13. Precipitation duration in hours during period 1 (first 16 hours - 1300 LST/LDT until 0500 LST/LDT the following day). Entries other then zero will be used sparingly, as they will reset fire danger indices for fuels in the southwest to zero.

14. Precipitation duration in hours period 2 (last 8 hours - 0500 LST/LDT until 1300 LST/LDT). Entries other then zero will be used sparingly, as they will reset fire danger indices for fuels in the southwest to zero.

15. Wet/dry flag. Used to indicate if fuels are wet/dry. "N" will almost always be entered, as a "Y" resets fire danger indices for fuels zero.

C. Routine Fire Weather Planning/Pre-Suppression Forecasts

At this time, routine fire weather planning/pre-suppression forecasts (FWF's) are issued for Arizona and New Mexico only. These forecasts are issued daily by the weather service offices responsible for designated areas of these two states, with seasonal formats and issuance times based on supporting prescribed burn activity during the fall and winter and wildfire activity in the spring and summer. These forecasts provide information on cloud cover, temperature, wind and chances for precipitation throughout the year, as well as ventilation data, Haines Index values (HI), lightning activity levels (LAL), free-air winds and relative humidity (RH) levels as seasonally appropriate. *Specifics regarding the FWF products for Arizona and New Mexico are found under section IV of this operating plan.*

While FWF's are not currently issued for west Texas or the Oklahoma panhandle, similar information can be obtained from the public forecast products (ZFP's) issued by the NWS offices in Amarillo and Lubbock. *Additional information regarding public forecast products for west Texas and the Oklahoma panhandle is found under section IV of this operating plan.*

D. Red Flag Program

The red flag program is a means by which the weather forecaster informs the land management agencies of the possibility of weather elements that could cause extreme fire behavior. Identification of red flag events is a primary responsibility of the forecaster producing the fire weather forecasts.

1. Criteria

The established criteria for Fire Weather Watches and Red Flag Warnings in USFS Region 3 are a combination of weather and fire danger ratings. *In general, Fire Weather Watches or Red Flag Warnings will be issued when sustained winds of* ***20 mph (using a 10 minute average at the 20 foot level)*** *or greater are expected along with RH of 15 % or lower, and a NFDRS fire danger rating of high or higher.* Such events will be headlined in the fire weather narrative and spot forecasts, and/or may be issued as a separate forecast or statement. Other weather events significant to fire management operations may also be highlighted, but are not criteria for Fire Weather Watches/Red Flag Warnings.

2. Fire Weather Watch

Fire Weather Watches are issued to alert agencies to the possibility of red flag conditions beyond the first forecast period (12 hours). Forecasters will issue a Fire Weather Watch when there is reasonable confidence that a red flag event may occur. The watch is issued generally 12 to 48 hours in advance of the expected conditions, but can be issued up to 72 hours in advance if appropriate confidence exists. The Fire Weather Watch will be headlined in the routine fire weather forecast, or possibly sent as a special forecast, and will remain in effect through the expiration time noted in the forecast, or until canceled or upgraded.

3. Red Flag Warning

A Red Flag Warning is used to inform agencies of the imminent or actual occurrence of red flag conditions. A Red Flag Warning will be issued *immediately* when there is high confidence that red flag criteria will occur within the next 24 hours, or if those criteria are already being met. (Due to forecast uncertainty beyond 12 hours, a Fire Weather Watch will be more often used in the 12 to 24 hour time frame.) When a warning is issued the phrase ***RED FLAG WARNING*** will be headlined in the routine fire weather forecast or a short special forecast to inform users of the warning. **If a Red Flag Warning is issued between regularly scheduled forecasts, a call shall be made to the affected land management agencies.** The warning will be continued on subsequent forecasts until no longer valid. A cancellation statement shall terminate the warning if it is no longer valid..

E. Haines Index

The Haines Index is a numerical means to indicate the potential for large wildfires to experience extreme fire behavior (i.e. crowning, spotting, and rapid rates of spread). This index will routinely be issued as part of the in-season fire weather narratives in Arizona and New Mexico, and includes raw data from many of the morning upper air soundings across the southwest, as well as forecast data.

The Haines Index combines both the instability and dryness of the air by examining the lapse rate between two pressure levels in the atmosphere and the dryness at the lower level. In the Southwest Area, the levels used are 700 mb (about 10,000 ft) and 500 mb (about 18,000 ft). The more unstable the atmosphere and the drier the conditions at the lower level, the larger the Haines Index. The greater the index, the better the chances are for a wildfire to experience "blow up" like conditions. Haines Index values vary from 2 to 6 and classifications are shown below:

HAINES INDEX	POTENTIAL FOR LARGE FIRE GROWTH
2 or 3	Very Low
4	Low
5	Moderate
6	High

(The Haines Index does **not** indicate the potential for fire ignition **nor** does it include the effects of wind on fire spread.)

F. Ventilation and Smoke Dispersal

During the cool season of the year (normally about Oct. 1 through Apr. 1), daily observed and forecast ventilation values will be included as part of the routine fire weather forecasts, to be used as guidance for smoke dispersal during controlled burns. While winds and/or instability will normally preclude anything but good to excellent ventilation during the warm season, ventilation values may still be provided at the request of the land management agencies. In general, the NWS will attempt to respond to the needs of the land management agencies by either beginning the ventilation forecasts earlier in the fall, or by extending them further into the spring as appropriate, with regard to the resources available to the NWS to do so.

Data computed from morning atmospheric soundings at various upper-air sites across the southwest will be used to provide ventilation values for that day. Forecasters will use this data, in combination with an assessment of the weather changes to take place over the following 24 hours, to produce a forecast ventilation category for the next day. The following are terms and definitions necessary to understanding ventilation data and values:

1. Mixing height or mixing depth: The height to which relatively vigorous mixing occurs due to heating. Units are in feet above ground level (AGL), with ground level being the elevation above mean sea level (MSL) of the upper-air site. It is important that wildland fire managers

note the difference in elevation between the burn site and the referenced upper-air sight, and modify the provided mixing depths accordingly.

2. Transport winds: A measure of the average rate of the horizontal transport of air within the mixing layer. Units are in knots (1 knot = 1.15 mph) . An average wind direction (the direction from which the wind is blowing) is provided. If winds are light and variable as they likely will be in a critical situation, then it may be best to consider the normal drainage winds.
3. Ventilation: The product of the mixing height and the transport wind speeds. It is a measure of the volume rate of horizontal transport of air within the mixing layer per unit distance normal to the winds. Units are in knot-feet.

Critical limits of ventilation are values less than about 40,000 knot-feet along with transport winds less than 7.0 knots. When these conditions prevail, dispersion of any pollutants released into the atmosphere will be severely limited.

As a guide, the following categories have been established to describe the ventilation:
For Arizona Stations:

Excellent	100,000 kt-ft or greater
Very good	70,000 - 99,999 kt-ft
Good	40,000 - 69,999 kt-ft
Fair	20,000 - 39,999 kt-ft
Marginal	8,500 - 19,999 kt-ft
Poor	less than 8,500 kt-ft

For New Mexico Stations:

Excellent	150,000 kt-ft or greater
Very good	100,000 - 149,999 kt-ft
Good	60,000 - 99,999 kt-ft
Fair	40,000 - 59,999 kt-ft
Poor	less than 40,000 kt-ft

G. Spot Forecasts

Spot forecasts are site specific forecasts for wildfires, prescribed burns, search and rescue operations, aerial spraying, etc., and are available upon request at any time of day, week or season. Consultation service is also available for planning projects for which weather might be a factor. The request will be completed as soon as possible, but protection agencies should be aware that other duties may take higher priority, and short delays may occur. If the request is for a **wildfire**, please inform the forecaster, or annotate the spot request form accordingly. ***A new Internet based spot forecast program named WRSpot will be the primary means for most offices to request and receive these specialized forecasts. The fax machine will remain the backup method for requesting and receiving spot forecasts.*** Normally, spot forecasts will be sent to the requesting agency within one-half to one hour of the request. If excessive delays are encountered, please give the appropriate NWS office a phone call.

Spot forecasts will include detailed data including sky conditions, precipitation probabilities, specific maximum and minimum temperatures and humidities, and 20 foot winds for the specific area. Forecasts will ordinarily include the first two periods (such as today and tonight) with an outlook for the third period.

Spot forecasts should not be used as general planning tools for the following day. "Planning" type forecast information should be obtained from the Fire Weather Narrative Forecast (FWF) or the Zone Forecast Product (ZFP), and can be augmented by direct phone consultation with a forecaster on duty at the appropriate NWS office. Spot forecasts are intended to support ongoing or imminent wildfire or prescribed burn activity only.

When requesting a spot forecast, please use the WRSpot Request Form. In addition, any data from hygrothermographs, max./min. temperatures or RH, or any prior observations will aid in the formulation of the forecast. The request form should be faxed to the appropriate NWS office or, if a fax is not available, phoned in.

If you have any problems reading or understanding the spot forecast please do not hesitate to give the appropriate NWS office a phone call. Additionally, if at any time during the project the forecast does not reasonably match observed conditions please call for an updated forecast or to discuss the current situation. Comments on forecast accuracy, positive or otherwise, plus any additional site observations, are strongly encouraged. *It is imperative that agencies requesting spot forecasts realize that the accuracy of any forecast is based highly, if not entirely, on the quality of the observations received. Beyond that, without feedback regarding forecast accuracy, there is little or no chance that the accuracy of successive forecasts will improve. The bottom line is that the NWS implores the land management agencies to provide as much information as possible when requesting spot forecasts, and to provide feedback regarding forecast accuracy when at all possible.*

Note: As a reminder, due to Congressionally mandated policy enacted in fiscal year 1996, non-wildfire forecast support may only be provided to federal agencies. The NWS may not provide routine forecast support to state and local fire management agencies. However, forecast support will always be provided to any requesting agency in support of wildfire activities or any prescribed burn which may become a wildfire. *This is why it is imperative that non-federal agencies requesting spot forecasts for a wildfire indicate that it is a wildfire when making the request.*

H. Communications

All NWS products, including NFDRS zone trend and station forecasts and routine fire weather forecasts (FWF's), are transmitted via the NWS AWIPS communications systems into WIMS. Most of these products are available on the Internet within 10 minutes of the time they are issued. Internet links to fire weather forecasts can be found on the SWCC Intelligence page, Boise Fire Weather page and most of the home pages of the individual NWS offices in the SWA. (see summary of offices and services at end of ops plan). Under critical or otherwise unusual circumstances, forecasts may be faxed or e-mailed to SWCC and/or the individual dispatch zones.

III SPECIAL METEOROLOGICAL SERVICES

Special meteorological services are those functions that are not provided by the National Weather Service on a routine basis. Included are participation in federal land management agency training sessions, station visitation, and on-site weather support with an Incident Meteorologist (IMET) and an Advanced Technology Meteorological Unit (ATMU).

A. On-site Meteorological Services (IMET/ATMU)

The ATMU is a modular, mobile forecast office designed to be easily handled, shipped, and assembled. ***The ATMU NFES number is 1836.*** The total weight of the ATMU is about 250 pounds and occupies roughly 25 cubic feet. The modules contain a portable lap-top computer with a printer and internal modem, a satellite system for high speed data transfer to the laptop, and a theodolite (for tracking pilot balloons) along with belt weather kits and other assorted supplies. In addition to the ATMU, one or more micro-REMS (Remote Environmental Meteorological Stations) units will need to be resource ordered for the incident. ***The micro-REMS NFES number is 5800.*** Trained IMETs equipped with an ATMU and micro-REMS provide on-site weather support for critical prescribed burns on federal lands and for the control of large wildfires. Two resource orders are required when making a request for an ATMU, one for equipment (ATMU and micro-REMS) and one for overhead (IMET).

The request for an IMET, ATMU and micro-REMS will be placed to the Southwest Interagency Coordination Center (SWCC) in Albuquerque. SWCC will then follow the following procedure:

1. Contact the IMET from the NWS office nearest the incident location to see if that person is available for dispatch. *Use the contact information at the end of the plan.* **If that IMET is unavailable or does not call SWCC back within a reasonable amount of time after a message has been left, the order will be forwarded to NICC.**

2. An ATMU and micro-REMS will need to be obtained from the nearest cache site (Prescott, AZ or the NWS office in Albuquerque, NM). **If unavailable, the request will be forwarded to NICC.**

Once arrangements for an IMET and equipment are made, SWCC/NICC can forward the request to the appropriate NWS office and/or cache site at any time of the day or night. In some situations, the IMET will be able to transport the ATMU and micro-REMS to the incident. In others, arrangements will need to be made for the equipment to be delivered to the incident.

All requests should include the following information:

1. Name of fire
2. Location of fire
3. Directions to location where the IMET is to report and Fire Camp Location

4. Name of Incident commander, Plans Chief and Fire Behavior Analyst if available.
5. Request and Resource Order numbers for IMET, ATMU and micro-REMS

The requesting agency is responsible for transporting the IMET, ATMU and micro-REMS to and from an incident. Additionally, the user agency is responsible for providing adequate shelter to allow the equipment and fire weather meteorologist to function efficiently. This would include a location free of excessive dust, heat and moisture, protection from wind and other elements, table and chair. Transportation and shelter arrangements should be made at the time of request. The ATMU requires 120 volt AC power. If available, a small tank of helium for weather balloons and telephone access are also needed. **A work area with a clearing to the south, allowing visibility to within 40 degrees of the horizon, should be provided to allow the IMET to take advantage of the satellite system that is part of the ATMU.**

User agencies will reimburse the NWS for all costs associated with IMET mobilization as set forth in the National Agreement. Reimbursable expenses include overtime, per diem, travel, equipment maintenance, and transportation of the IMET and equipment.

B. Training

NWS fire weather meteorologists are available to assist land management agencies with training at fire behavior courses (e.g., S-290, S-490, etc.) and other fire weather related courses. Requests for assistance should be made through the Meteorologist-in-Charge (MIC) of the appropriate NWS office by written letter, when dates for such training are known. Requests should be made as far in advance of the training dates as possible to allow for NWS resource scheduling. *Consult the "Training Assistance" section of the summary/reference section at the end of the ops plan for more information. (Page 85)* **Under the National Agreement, expenses incurred by the NWS while providing training assistance must be reimbursed by the requesting agency.**

IV SPECIFIC FIRE WEATHER SERVICES BY AREA

This section will provide clarification on the specific services provided by the different NWS offices and how they differ from the general information already provided. It should be assumed that the information previously provided in section II is valid, unless otherwise noted.

A. Arizona

General Information

The fire weather forecasts and responsibilities for Arizona will be shared by the Phoenix, Tucson, Flagstaff, and Las Vegas NWS offices. While each of the NWS offices will have at least one forecaster responsible for the fire weather program, the forecasting duties will be shared by the whole forecast staff. Each office in Arizona will have one incident meteorologist (IMET) at the station. The IMET will also man the ATMU during project fires at any times.

NFDRS Zone Trend and Station Forecasts

Zone trend forecasts of specific parameters are needed to compute tomorrow's fire danger ratings for all of the forests, the BLM land, and in the San Carlos, Ft. Apache, Hualapai, and Navajo Indian Reservations. The zone trend forecast is put into AWIPS and will go automatically into WIMS, as described previously in the general information section. *It is worth reinforcing that the "state of weather" forecasts refer to the expected observed conditions at the valid time referred to, usually 1300 MST the next day. (See element 5, page 8).* A listing of Arizona NFDRS stations and RAWS sites are provided on pages 25 and 27 respectively. A map showing the Arizona NFDRS zones and stations is on page 29.

In rare cases, single station forecasts will be made where actual values for temp, RH, winds and 10hr fuel moistures are used in place of trends. Also, max and min temps and RH are included. The forecast for stations has been rarely used the past several years and is preceded by FCST command instead of the usual ZONE command.

NFDRS forecasts will be made daily through the prime fire weather season during the afternoon. The NFDRS forecast will be issued from April through about early November. The NFDRS forecast will not be included with the afternoon routine fire weather forecast, but it will be sent into WIMS.

Routine Fire Weather Forecasts (FWF'S)

1. Regular Forecasts are issued twice daily, seven days a week, at least during the prime fire weather season and will possibly be extended year around, though this is presently uncertain.

a. BY 0930 at the latest, and most often closer to 0900 (or even earlier at those offices which choose to do the fire weather forecast on the midnight shift), a weather synopsis, sometimes including a headline statement explaining the most significant weather event expected, as well as forecasts for the different

zones, including temperature, relative humidity, slope/valley and ridgetop winds, and during the in-season period, lightning activity level (LAL), and chance of wetting rain will be issued for today and tonight. The temperature and RH trends will also be included for today and tonight. The sky/weather, slope/valley and ridgetop winds, as well as the temperature and RH trends only will be issued for tomorrow. The morning forecast will also include the ventilation forecast and Haines Index during the fire season, and the ventilation forecast only during off-season. The forecast is transmitted to AWIPS, where it automatically goes into the Internet and WIMS, the Weather Information Management System.

b. The principal planning forecast will be transmitted to AWIPS and automatically into the Internet by 1530 MST. It will also have a synopsis, including a headline statement, if necessary, as well as forecast for the different zones, including temperature, relative humidity, slope/valley and ridgetop winds, lightning activity level (LAL) and chance of wetting rain for tonight, tomorrow, tomorrow night, and the next day. The temperature and RH trends will also be included.

2. During the year, except from June 1st until September 1st in most offices, a smoke management forecast (ventilation data) is issued daily with the morning fire weather forecast. The smoke management forecast includes mixing height, transport winds in the mixing layer, and ventilation data based on the Tucson, Flagstaff , Desert Rock, and Yuma soundings. Also included is an outlook trend for the ventilation for the following day.

* *A truncated example of an Arizona forecast follows on page 32.*

Red Flag Program

The Red Flag Program for Arizona follows the guidelines outlined earlier in the general information section, with the following modifications/clarifications.

- When a "Red Flag Warning" is issued, the term RED FLAG WARNING will be carried as the headline of either a short forecast or warning message, or in the regular routine fire weather forecast.

- When a "Fire weather watch" is issued, the term Fire Weather Watch will appear in the headlines of the first regularly scheduled routine fire weather forecast.

- "End Red Flag Warning" or "End Fire Weather Watch" will be issued when red flag conditions are no longer expected, as earlier anticipated.

- When an "End Red Flag Warning" or "End Fire Weather Watch" is issued, the term END RED FLAG WARNING or END FIRE WEATHER WATCH will be headlined.

A "Red Flag" event is unusually severe fire weather (such as very low humidity in combination with strong winds and a Fire Danger Rating of High or greater. Low fuel moistures is an added consideration that can be used. Normally in Arizona, sustained winds of **20 mph (10 minute average 20 foot level)** or greater are expected in a "Red Flag Warning" or "Fire Weather Watch." A very low humidity would be a relative humidity of 15 pct or lower. Though a low fuel moisture is needed before a fire danger

rating of high or greater is achieved, a low fuel moisture would include 1 hour and 10 hour fuel moistures below 7 percent, a 100 hour fuel moisture below 10 pct, and 1000 hour fuel moisture below 14 pct. The fuel moistures are just guidelines and final decision for issuing fire weather watches and red flag warnings are left to the forecaster. Again, the fire danger should be at least in the high category. The issuance of a Fire Weather Watch or Red Flag Warning is not issued for dry lightning in region 3, as was recommended by region 3 headquarters a few years ago. A headline advertising the possibility of dry lightning will be used instead.

Spot Forecasts

Special forecasts or spot forecasts for going fires are available upon request any time. These requests will be handled by the Fire Weather Meteorologist on regular working days during the fire season. At other times or during emergencies, the duty forecaster at the Weather Service Office may answer the request. Officials requesting special forecasts are urged to use the WRSpot Internet Based Request Program, supplying as much data from the fire site as possible including a weather observation. (See Appendices B and C for examples).

Special forecasts for prescribed burns or emergences projects will be honored during normal working hours, from 0730-1530 MST. Because of the variation in workload of the Fire Weather Meteorologist on duty, the special forecasts can be handled with greater expediency during the morning hours from 1000-1300 MST, when the routine workload of the Fire Weather Meteorologist is less.

The special forecasts for prescribed burns will normally include forecasts for TODAY, TONIGHT, and TOMORROW. These forecasts will be generally made by the meteorologist doing the fire weather forecast. However, every effort will be made to service such requests as promptly as possible.

Additional Information

Weather Observation Station Visitation

The Fire Weather Meteorologist will try to visit some of the observation stations and dispatch offices mainly during the off season. Due to tight budget constraints, the need of the Fire Weather Meteorologist to teach fire behavior courses, and reduced size of the staff, this travel has been limited in recent years and may continue to be limited.

Importance of Accurate Observations

If an observation appears to be incorrect to the Fire Weather Meteorologist, the Fire Dispatch Office concerned will be asked for clarification or correction by telephone.

The following is taken verbatim from the Phoenix Operations Manual:

"The taking of any scientific observation is a procedure governed by strict standards and requires the careful attention of personnel assigned this function. The weather observations taken for (and by) the U.S. National Weather Service constitute official legal records of the United States Government and as

such, may be subpoenaed into court as legal evidence. Therefore, the observer of such data becomes the "expert" on the weather observed.

For some types of weather observations such as aviation and synoptic, observers are required to pass certifying examinations in their specialty. For others such as hydrologic, climatological and fire weather, they are not. But in all instances, whenever an observer initials an observation, he is certifying that he has taken the observation to the best of his ability and is ready to defend it in court, if necessary.

It cannot be emphasized enough that a forecast is only as good as the observations upon which it is based. If an observation is inaccurate, untimely or incomplete, forecasters can be misled as to the true conditions existing at a particular place at a particular time".

Many observations are now done by RAWS. It is important that these automatic stations be calibrated to insure their reliability.

Communication of Additional Weather Information

Additional weather information, such as the various watches or warnings, is available on the Internet. The home pages of various National Weather Service offices will provide this information. The use of e-mail in conjunction with the Internet can also be used.

1. NORTHWEST ARIZONA

General Information

The National Weather Service in Las Vegas, NV is responsible for providing Fire Weather support for northwest Arizona. The area of responsibility covers fire weather narrative zones
1 and 2, which includes all of Mohave County. The Las Vegas office is staffed with 13 meteorologists trained in fire weather forecasting. A core staff of 10 meteorologists will provide the majority of the forecasts and fire weather support 24 hours a day, 7 days a week. The office Fire Weather Program Manager is also a certified Incident Meteorologist (IMET) and available for dispatch to fires.

Changes for 2001

The format for the routine fire weather forecasts (FWFs) will be different and will follow a national format this year. In addition, Las Vegas assumes fire weather responsibility for southern Nevada this year. The routine fire weather forecast will now include Nevada zone 456 as well as Arizona zones 1 and 2. Some additional format changes were necessary due to the combining of the 2 previously different formats into one single format. Examples of the morning and afternoon narrative forecasts are provided. The morning narrative forecast will now be issued by 7 am. Las Vegas will issue the NFDRS zone trend forecast for NFDRS zone 311. Wind speed for Red Flag Criteria will be lowered to 20 mph with the understanding that all winds are 20 foot winds based on a 10 minute average. A web-based spot forecast request program will be available.

Routine Fire Weather Forecasts

1. Will be issued to AWIPS, WIMS, and the internet.

2. Issuance times will be 700 am and 300 pm during the fire season and at 700 am during the off-season.

3. Forecasts will be issued 7 days a week.

4. Ventilation and Haines index will be provided in both the morning and afternoon forecasts for each zone during the fire season.

5. A 3 to 5 day forecast and 6 to 10 day outlook will be provided with both the morning and afternoon forecasts at the end of the entire forecast product. The 3 to 5 day forecast will include a general wind forecast if the wind is expected to be significant..

NFDRS Zone Trend Forecasts

The Las Vegas office will issue the NFDRS trend forecast at 300 pm and will include Arizona NFDRS zones 301 and 311. If an observation is not received for a NFDRS zone, a forecast will not be made for that zone.

Red Flag Program

Red Flag Warnings and Fire Weather Watches will be issued as required after coordination with customers and adjacent NWS offices. Region 3 guidelines for minimum relative humidity, wind speed and fire danger rating/preparedness level will be followed.

Spot Forecasts

The Las Vegas office will prepare spot weather forecasts for prescribed burns and wildfires as requested. These forecasts will be issued as promptly as possible, usually within 30 minutes of receipt of request. Spot forecast requests for wildfires will have a higher priority than those for prescribed burns. Spot requests should be submitted using the new web-based spot forecast program found on our web site. Requests may still be made by faxing a WS Form D-1 (or a blank version of the electronic version found in the web-based spot forecast request program) the day of the burn. Spot forecast requests must be accompanied by at least one observation from the burn site.

Observations from the previous day or two can be very helpful as well. Other information such as ignition time, quad map name, latitude and longitude, and township and range should also be provided. It is also helpful to give us advanced warning a day or two ahead of time that you will be requesting a spot forecast for a prescribed burn. Feedback on the spot forecasts is greatly appreciated and can help "fine tune" subsequent forecasts for that area, allowing us to serve you better.

Training

The fire weather program leader will be available to handle fire weather training requests from Northwest Arizona customers. Requests for these services should be made as far in advance as possible through the Meteorologist-In-Charge.

Additional Information

The Las Vegas office maintains a Fire Weather Page on its web site home page. This page will contain forecasts, raws observations and links to other related sites. The fire weather web site url is: http://www.wrh.noaa.gov/lasvegas/fire.htm

2. NORTHERN ARIZONA

General Information

The National Weather Service office in Flagstaff is responsible for providing fire weather support for most of northern Arizona. This area covers fire weather zones 6 through 24 (NFDRS zones 302, 303, 304 and 308). These zones are outlined in atch Y. The Flagstaff office has a staff of 10 meteorologists, one of which is designated as an Incident Meteorologist (IMET). The office provides a full range of support services including regular fire weather pre-suppression forecasts, spot forecasts for prescribed burns and wildfires, ventilation forecasts, fire weather watches and Red Flag warnings. The office also provides training support for the S-290 course and other training requirements as requested by the U.S. Forest Service.

Routine Fire Weather Forecasts

1. The Flagstaff office will issue routine Fire Weather Forecasts for its zones at 730 a.m. and 330 p.m. daily during the fire weather season. During the non-fire weather season the Fire Weather Forecast will be issued once daily at 930 a.m.

2. A ventilation forecast for the Flagstaff area will be provided with the morning forecast package. The Haines Index for Flagstaff will also be provided.

3. A 3 to 5 day forecast and a 6 to 10 day outlook will be appended to the afternoon Fire Weather Forecast package during the fire season and will be provided with the morning package during the non-fire weather season.

NFDRS Zone Trend Forecasts

The Flagstaff office will issue the NFDRS trend forecast at 300 p.m. daily during the fire season. NFDRS observation must be available by 200 p.m. in order for a NFDRS forecast to be made for the NFDRS zones. If an observation is not received for a NFDRS zone a forecast will not be made for that zone.

Red Flag Program

Fire weather watches and Red Flag warnings will be issued as required. These products will be coordinated with the appropriate surrounding weather offices. These products will adhere to the criteria and format set forth in the Southwest Area Fire Weather Operating Plan and National Weather Service directives.

Spot Forecasts

The Flagstaff office will prepare spot weather forecasts as requested. These forecasts will be issued as promptly as possible. Spot requests should be made using the Fire Weather Spot Request form (atch X). The request for a spot forecast should be made the day of the burn, at least an hour or two before the ignition time and be accompanied by at least one observations from the burn site. Other information such as ignition time, quad map name, and the latitude and longitude of the burn area should also included in the request. If requests are made via FAX a follow up call from the dispatch office should be made to ensure receipt of the spot request.

This season a new internet web-based spot weather forecast system will be tested and evaluated. When using the internet method, submit the spot request via the form on the NWS Flagstaff's fire weather page. The requesting agency should place a follow-up phone call to the NWS Flagstaff office to ensure receipt of the request for a spot forecast. The forecaster will call the requesting agency when the spot forecast is completed and available on the internet web page.

IMET Services

The Flagstaff office has an IMET meteorologist available for dispatch to major forest fires. Requests for IMET services should be made to the NWS Flagstaff Meteorologist-In-Charge (MIC). Requests should contain the following information: 1) name of the incident; 2) location of the incident; 3) contact names and telephone numbers; 4) date and time when IMET should report to the fire site; 5) resource order numbers; 6) if known names of the incident commander and the fire behavior analyst. If the Flagstaff office is unable to fill a request for an IMET it will forward the request to the staff meteorologist at NIFC in Boise, ID. IMET services are also available for toxic spill incidents and other hazardous events.

Training Services

Meteorologists are available to assist with training requirements of the U.S. Forest Service. Request for these services should be made as far in advance as possible through the NWS Flagstaff MIC.

Additional Information

The Flagstaff office maintains a Fire Weather Page on its Web Site Home page. This page will contain the routine Fire Weather and Spot forecasts as well as Fire Weather watches and Red Flags warnings.

Other general information of interest to land managers is also included. The web site address is: http://www.wrh.noaa.gov/Flagstaff/fwx2.html.

3. SOUTHEAST ARIZONA

General Information

The National Weather Service in Tucson is staffed with 12 meteorologists trained in fire weather forecasting. The office has a certified incident meteorologist (IMET) on staff who is available for dispatch to project fires. A core staff of 9 meteorologists will provide the majority of the forecasts and fire weather support **24 hours a day, 7 days a week.** The Tucson office is responsible for **Arizona fire weather zones 46 through 48.**

Changes from Last Year

1. WRSpot program will be the primary means of requesting and disseminating spot forecasts . The fax machine will remain as the backup method.

NFDRS Zone Trend and Station Forecasts

Zones 305 and 306 will be issued at 300 pm. Zone 306 will include pre suppression zones 46 and 48.

Routine Fire Weather Forecasts (FWFs)

1.Will be issued to AWIPS, WIMS, the Internet, and the Region 3 E-Mail system.

2. Issuance times will be **630 am** and **300 pm** during the fire season and **630 am only** during the off season.

3. Forecasts will be issued **7 days a week** all year.

4. Ventilation forecasts will be issued for Tucson all year in the morning forecast.

5. Haines index values will be given for Tucson in the morning forecast during the fire season.

Red Flag Program

Red flag products (Fire Weather Watch and Red Flag Warning) will be issued for Zones 46 through 48 after close coordination with customers and adjacent forecast offices. Region 3 guidelines for minimum relative humidity, sustained wind speed and fire danger rating will be followed.

Spot Forecasts

Spot forecasts will be honored for wildfires and prescribed burns at **any** time. Due to the presence of dedicated forecasters on the fire weather desk during day and evening shifts, please try to submit prescribed burn requests between 0700 and 1900 MST.

Additional Information

Internet

The Internet has become a primary means of communicating weather data to all types of customers. Fire weather observations, forecasts, and links to other related sites can be found on the Tucson Fire Weather Home Page at:

http://www.wrh.noaa.gov/Tucson/firewx.html

Office Visits

The Tucson Fire Weather Program Leader will visit local customer offices on a regular basis for coordination and quality assurance. The program leader will also try to visit customers outside the Tucson metropolitan area as time permits.

Customers are encouraged to visit the weather service office to meet the forecasters who provide them their service support and to see the latest in weather observation and forecast technology. Local customers are encouraged to attend the **office weather briefing** at 1100 am Monday through Friday (except holidays) during the fire season. Special briefings can be arranged during on weekends and holidays during extreme fire weather situations.

Training Requests

The Tucson Fire Weather Program Leader will handle all fire weather training requests from Southeast Arizona customers .

Points of Contact, Phone and Fax Number Information

See Summary of Southwest Area Fire Weather Services

4. SOUTH-CENTRAL AND SOUTHWEST ARIZONA

General Information

The National Weather Service in Phoenix is responsible for providing Fire Weather support for much of Southwest and portions of South-Central Arizona. Its area of responsibility covers fire weather zones 31 through 33. These zones are outlined in Figure 2 on page 29. The Phoenix office has a staff of 12 meteorologists. A core of 10 meteorologists will provide the majority of the forecasts and fire weather support, one of which is designated as an Incident Meteorologist (IMET). The IMET also serves as the Fire Weather Focal Point and instructs the weather portions of fire behavior and other courses. The office provides a full range of support services including regular fire weather pre-suppression forecasts, spot forecasts for prescribed burns and wildfire, ventilation forecasts, fire weather watches and Red Flag warnings. The office also provides training support such as for the S-290 and other training requirements requested by the Forest Service.

Routine Fire Weather Forecasts

1. The Phoenix office will issue routine Fire Weather Forecasts for its zones at 900 a.m. and 300 p.m. daily during the fire weather season. During the non-fire weather season the Fire Weather forecast will be issued once daily at 900 a.m.

2. A ventilation forecast for the Yuma area will be provided with the morning forecast package. The Haines Index will also be provided during the fire season. During part of the fire season, a sounding from Phoenix may also be available, in which case a ventilation forecast and the Haines Index will be included for the Phoenix area as well.

3. A 3 to 5 day forecast and 6 to 10 day outlook will be provided with the afternoon forecast package during the fire season, and with the morning forecast during the non-fire weather season.

NFDRS Zone Trend Forecasts

The Phoenix office will issue the NFDRS trend forecast at 315 p.m. daily during the fire season. NFDRS observations must be available by 200 p.m. in order for a NFDRS forecast to be made for a NFDRS zone. If an observation is not received for a NFDRS zone a forecast will not be made for that zone. NFDRS forecasts will be for NFDRS zones 307, 309, and zone 310, which corresponds to narrative zones 32, 33, and 31 respectively.

Red Flag Program

Fire weather watches and Red Flag warnings will be issued as required. These products will be coordinated with the appropriate surrounding weather offices. These products will adhere to the criteria and format set forth in the Southwest Area Fire Weather Operating Plan.

Spot Forecasts

The Phoenix office will prepare spot weather forecasts as requested. These forecasts will be issued as promptly as possible. Spot requests should be made using WS Form D-1 the day of the burn, at least an hour or two before the ignition time, and be accompanied by at least one observation from the burn site. Other information such as ignition time, quad map name, and the latitude and longitude of the burn area also should accompany the request.

Spot forecasts will be honored for wildfires and prescribed burns at any time. However, due to the presence of dedicated forecasters on the fire fire weather desk during the day, please try to fax prescribed burn requests between 0700 and 1530 MST.

IMET Services

The Phoenix office has an IMET meteorologist available for dispatch to fires. Requests for IMET services should be made to the NWS Phoenix office. Requests should contain the following information: 1) name of the incident; 2) location of the incident; 3) contact names and telephone numbers; 4) date and time when IMET should report to the fire site; 5) resource order numbers; 6) if known the names of the incident commander and fire behavior analyst. If unable to fill a request for IMET services, the Phoenix office will forward the request to the staff meteorologist at NIFC in Boise. IMET services are also available for toxic spills incidents or other hazardous events.

Training

Meteorologists are available to assist with training requirements of the Forest Service. Requests for these services should be made as far in advance as possible through the NWS Meteorologist-In-Charge.

Additional Information

The Phoenix office maintains a Fire Weather Page on its Web Site Home page. This page will contain the routine Fire Weather and Spot forecasts as well as Fire Weather watches and Red Flag products. Other general information of interest to land managers is also included. The web site address is http:www.phx.noaa.gov

TABLE 2 - ARIZONA FIRE DANGER STATIONS

Fire Weather observations are taken mostly at 1300 MST at the following Fire Danger Stations for relay to the Weather Service Office at Phoenix. Many of these stations are now RAWS.

	Number	Elevation
1. Kaibab National Forest		
Tusayan	**020207**	**7000**
Dry Park	**020212**	**8708**
Warm Springs	**020216**	**8010**
2. Coconino National Forest		
Flagstaff	**020209**	**6980**
3. Prescott National Forest		
Iron Springs	**020501**	**5900**
Crown King	**020502**	**6000**
Camp Verde	**020503**	**3170**
4. Apache-Sitgreaves Nat'l Forest		
Heber	**020301**	**6600**
Lakeside	**020303**	**6700**
Alpine	**020401**	**8000**
5. Tonto National Forest		
Globe	**020601**	**3540**
Payson	**020602**	**5000**
Pleasant Valley	**020603**	**5577**
Roosevelt	**020604**	**2150**
6. Coronado National Forest		
Columbine	**021005**	**9521**
Saguaro Nat'l Monument	**021202**	**3100**
7. Ft. Apache Indian Reservation		
Limestone	**020302**	**6800**
North Whiteriver	**020307**	**5241**
8. San Carlos Indian Reservation		
San Carlos	**020607**	**2640**
Dry Lake	**021009**	**7484**
9. Hualapai Indian Reservation		
Frazier Well	**020213**	**6780**
10. Navajo Indian Reservation		
Piney Hill	**020402**	**8102**

TABLE 2 - ARIZONA FIRE DANGER STATIONS (cont.)

	Number	Elevation
11. Bureau of Land Management		
Mt. Trumbull	**020104**	**6500**
Kingman	**020105**	**3540**
Logan	**020107**	**7220**
Olaf	**020108**	**2900**
Tweedy	**020109**	**5200**
Hibernia	**020110**	**5163**
Nixon	**020113**	**6500**
Black Rock	**020114**	**7230**
Union Pass	**020116**	**3520**
Hurricane	**020117**	**5445**
Havasu	**020118**	**475**
Music Mountain	**020119**	**5420**
Yellow John Mountain	**020217**	**6160**
Oak Creek	**020219**	**5210**
Lindburg	**020220**	**8800**
Goodwin	**020507**	**4900**
Humbug	**020508**	**5250**
Stanton	**020509**	**3600**
Sunset Point	**020510**	**2960**
Yuma	**020701**	**206**
Horse	**020903**	**4000**
Haley Hills	**020904**	**1950**
Mescal	**020905**	**4200**
Muleshoe Ranch	**021007**	**4175**
Black Hills	**021008**	**3300**
Guthrie	**021104**	**6200**
Empire	**021205**	**4500**
Sasabe	**021206**	**3500**
Dos Cabezas	**021407**	**7100**
Smith Peak	**021501**	**2500**
St. George	**422804**	**3000**
12.Other National Parks and Monuments		
Bright Angel	**020211**	**8400**
Manning Camp	**021204**	**8000**
Chiricahua	**021409**	**5480**
Walnut Canyon	**020218**	**6700**
Wupatki SW	**020228**	**5725**
Rincon	**021207**	**8240**

Note: Not all 6 digit station ID's may be available in WIMS.

TABLE 3

ARIZONA REMOTE AUTOMATIC WEATHER STATIONS

Station	ID	Elevation	Owner
ZONE 301			
Olaf Knolls	324C814E	2900	BLM
Black Rock	324E11D8	7230	BLM
Yellow John	325FB444	6160	BLM
Mt. Logan	324CA7A2	7200	BLM
Nixon	327C4220	6500	BLM
Tweeds Point	324C9238	5200	BLM
Smith Peak-Havcuvar Mtns	327D7540	2500	BLM
Robinson Tank	327C27C6	5560	BLM
Hurricane	325883EA	5445	BLM
Music Mountain	3258E60C	5420	BLM
Moss Basin	----------	5920	BLM
Union Pass	325962E2	3570	BLM
ZONE 302			
Stanton	324C5726	3600	BLM
Humbug Creek	327CF1AE	5250	BLM
Goodwin Mesa	324C62BC	4200	BLM
Iron Springs	3233B7EA	5920	USFS
Oak Creek	326326CA	5210	USFS
Sunset Point	----------	2960	BLM
Crown King	325E30AA	6000	USFS
Payson	3260F7AC	5000	USFS
Camp Verde	----------	3170	USFS
Mescal	----------	4200	BLM
North White River	----------	5241	BIA
ZONE 303			
Tusayan	3233E796	6700	USFS
Warm Springs Canyon	32401B62	8010	USFS
Canyon	----------	6969	NPS
Buckskin Mountain	32590704	6400	BLM
Gunsight	32582312	5280	BLM
Dry Park	32390536	8708	USFS
Paria Point	32500158	7235	NPS
Lindburg	----------	8800	NPS
Flagstaff	32339106	7000	USFS
Walnut Canyon	----------	6700	NPS

TABLE 3 - ARIZONA REMOTE AUTOMATIC WEATHER STATIONS (cont.)

Station	ID	Elevation	Owner
ZONE 304			
Four Springs	324FFODO	6560	BLM
House Rock	32586018	5400	BLM
Wupatki SW	----------	5725	NPS
ZONE 305			
Horse Camp	327A5198	4000	BLM
ZONE 306			
Guthrie	327D03D0	6200	BLM
Black Hills	327D40DA	3300	BLM
Horse Camp	327A5198	4000	BLM
Saquaro	3233A49C	3100	USFS
Muleshoe Ranch	3276F0FC	4175	BLM
Empire	327C5156	4500	BLM
Chiricahua	FA61A234	5480	NPS
Sasabe	83712439	3500	BLM
Douglas	----------	4100	BLM
Gargodera Canyon	3238F748	4795	BLM
Dos Cabezas	3257F3E8	7100	BLM
Dry Lake	5210B364	7484	BIA
ZONE 307			
Smith Peak	327D7540	2500	
ZONE 308			
Limestone Canyon	----------	6800	BIA
Lakeside	32341526	7000	USFS
Greer	----------	8200	USFS
Promontory	----------	7931	USFS
ZONE 309			
Roosevelt	326BA478	2150	USFS
San Carlos	----------	2640	BIA
Globe	----------	3540	USFS
ZONE 310			
Squaw Lake (CA)	327C34B0	400	BLM
Havasu	162FA5CC	475	BLM

Arizona NFDRS Zones and Observation Stations

Figure 1 - Arizona NFDRS Zones and Observation Stations

TABLE 4

Arizona Fire Weather Narrative Zones

Las Vegas National Weather Service

1 LOWER COLORADO RIVER VALLEY AZ - LAKE HAVASU AND FORT MOJAVE

2 NORTHWEST PLATEAU - NORTHWEST DESERTS

Flagstaff National Weather Service

6 KAIBAB PLATEAU - INCLUDING JACOB LAKE...FREDONIA

7 MARBLE AND GLEN CANYONS INCLUDING PAGE...LEES FERRY

8 NORTHEAST PLATEAUS AND MESAS HWY 264 NORTHWARD - INCLUDING KEAMS CANYON...KAIBITO

9 BLACK MESA AREA - INCLUDING NAVAJO N.M.

10 CHINLE VALLEY - INCLUDING CANYON DE CHELLY...CHINLE...KAYENTA

11 CHUSKA MOUNTAINS AND DEFIANCE PLATEAU- INCLUDING WINDOW ROCK...GANADO

12 GRAND CANYON COUNTRY INCLUDING GRAND CANYON VILLAGE...SUPAI

13 LITTLE COLORADO RIVER VALLEY IN COCONINO COUNTY - INCLUDING WUPATKI N.M....TUBA CITY

14 NORTHEAST PLATEAUS AND MESAS SOUTH OF HWY 264 - INCLUDING DILKON...KYKOTSMOVI

15 LITTLE COLORADO RIVER VALLEY IN NAVAJO COUNTY - INCLUDING WINSLOW...HOLBROOK...SNOWFLAKE

16 LITTLE COLORADO RIVER VALLEY IN APACHE COUNTY - INCLUDING ST JOHNS...SPRINGERVILLE

17 COCONINO PLATEAU - INCLUDING VALLE

18 WESTERN MOGOLLON RIM - INCLUDING FLAGSTAFF...WILLIAMS...MUNDS PARK

19 EASTERN MOGOLLON RIM - INCLUDING HEBER...HAPPY JACK...FOREST LAKES

20 YAVAPAI COUNTY MOUNTAINS - INCLUDING PRESCOTT...SELIGMAN...ASH FORK...CROWN KING

21 YAVAPAI COUNTY VALLEYS AND BASINS - INCLUDING COTTONWOOD...CAMP VERDE...CORDES JUNCTION...BAGDAD

22 OAK CREEK AND SYCAMORE CANYONS - INCLUDING SEDONA...VILLAGE OF OAK CREEK

23 NORTHERN GILA COUNTY - INCLUDING PAYSON...STRAWBERRY...YOUNG

24 WHITE MOUNTAINS - INCLUDING SHOW LOW...GREER...PINETOP

Phoenix National Weather Service

31 LOWER COLORADO RIVER VALLEY AZ -YUMA/MARTINEZ LAKE AND VICINITY-LAKE MEAD NATIONAL RECREATION AREA-YUMA BLM/CAZ-CRZ

32 WEST CENTRAL DESERTS-NORTHWEST MARICOPA COUNTY-GREATER PHOENIX AREA-SOUTHWEST DESERTS-SOUTHWEST MARICOPA COUNTY-CENTRAL DESERTS-PHOENIX BLM/YUMA/CAZ-CRZ

33 SOUTHERN GILA/TONTO NF FOOTHILLS-SOUTHERN TONTO NF/SAN CARLOS BIA / SOUTH PORTION FT APACHE BIA/CAZ-GCZ-WMZ

Tucson National Weather Service

46 NORTHERN GREENLEE COUNTY AND GRAHAM COUNTY NORTH OF THE GILA RIVER - APACHE NF

47 SOUTHEAST PINAL COUNTY - WESTERN PIMA COUNTY - TOHONO OODHAM NATION

48 TUCSON METRO/MARANA/GREEN VALLEY - SANTA CRUZ COUNTY - COCHISE COUNTY

****** See next page for AZ Fire Weather Zone Map***

Arizona Fire Weather Narrative Zones

Figure 2 - Arizona Fire Weather Narrative (FWF) Zones

Example 1 - Arizona Fire Weather Narrative (FWF) Forecast Example

Example of a Morning Forecast Issuance from Las Vegas

```
FNUS55 KVEF  DDHHMM
FWFLAS

FIRE WEATHER FORECAST FOR SOUTHERN NEVADA AND NORTHWEST ARIZONA
NATIONAL WEATHER SERVICE LAS VEGAS NV
900 AM MDT TUE MAY 1 2001

...HEADLINE...  (Strongly recommended...REQUIRED for Red Flag Warnings and Fire Weather
       Watches.)

.DISCUSSION...(MANDATORY ELEMENT - concise explanation of the current/forecasted fire
weather)


ZONE 1
AZZ002-036-012200-
LAKE HAVASU AND FORT MOJAVE-LAKE MEAD NATIONAL RECREATION AREA-
YUMA BLM/CAZ-CRZ-
900 AM PDT (900 AM MST) TUE MAY 1 2001

       ...RED FLAG WARNING/FIRE WEATHER WATCH HEADLINE (as needed in each appropriate
zone grouping) ...

.TODAY
   SKY/WEATHER...........PARTLY CLOUDY WITH A 30 PERCENT CHANCE OF AFTERNOON
                                        THUNDERSTORMS.
   MAX TEMPERATURE...82-90.
      24 HR TREND:         UP 2-3.
   MIN HUMIDITY.............12-18%.
      24 HR TREND:  DOWN 3-4%.
   WIND - 20 FT
        SLOPE/VALLEY...SOUTH 8-14 MPH.

   LAL...3
   HAINES...5

   VENTILATION...EXCELLENT
   MIXING HEIGHT...15000 FT MSL.
   TRANSPORT WIND...SOUTHWEST 12 MPH

.TONIGHT
   SKY/WEATHER...........MOSTLY CLEAR.
   MIN TEMPERATURE...60-66.
   MAX HUMIDITY...........32-40%.
   WIND - 20 FT
       SLOPE/VALLEY...DOWNSLOPE/DOWNVALLEY 4-8 MPH.

   LAL...1
   HAINES...4

.WEDNESDAY
   SKY/WEATHER...........MOSTLY SUNNY.
   MAX TEMPERATURE...84-92.
   MIN HUMIDITY.............10-16%.
   WIND - 20 FT
       SLOPE/VALLEY...SOUTH 8-14 MPH.

   LAL...1
   HAINES...5

=
$$
```

```
ZONE 2
AZZ001-003-012200-
NORTHWEST PLATEAU-NORTHWEST DESERTS-
ST GEORGE BLM/TRUXTON CANYON BIA/GCZ-CAZ-
900 AM PDT (900 AM MST) TUE MAY 1 2001

.TODAY
   SKY/WEATHER.............PARTLY CLOUDY WITH A 40 PERCENT CHANCE OF AFTERNOON
                                        THUNDERSTORMS.
   MAX TEMPERATURE:     4000 FEET...76-80.
                               7000 FEET...68-72.
                        24 HR TREND...UP 2-3.
   MIN HUMIDITY:               4000 FEET...15-20%.
                        7000 FEET...19-24%.
                        24 HR TREND:  DOWN 3-4%.
   WIND - 20 FT
        SLOPE/VALLEY...SOUTH 8-14 MPH.
        RIDGETOPS.........SOUTHWEST 12-20 MPH.

   LAL...4
   HAINES...5

   VENTILATION...EXCELLENT
   MIXING HEIGHT...15000 FT MSL.
   TRANSPORT WIND...SOUTHWEST 15 MPH

.TONIGHT
   SKY/WEATHER...........MOSTLY CLEAR.
   MIN TEMPERATURE:     4000 FEET...57-62.
                        7000 FEET...50-55.
   MAX HUMIDITY: 4000 FEET...32-40%.
                        7000 FEET...38-45%
   WIND - 20 FT
       SLOPE/VALLEY...DOWNSLOPE/DOWNVALLEY 4-8 MPH.
       RIDGETOP...........SOUTHWEST 10-15 MPH.

   LAL...1
   HAINES...4

.WEDNESDAY
   SKY/WEATHER...........MOSTLY SUNNY.
   MAX TEMPERATURE:     4000 FEET...76-80.
                        7000 FEET...68-72.
   MIN HUMIDITY:        4000 FEET...15-20%.
                        7000 FEET...19-24%.
   WIND - 20 FT
       SLOPE/VALLEY...SOUTH 8-14 MPH.
       RIDGETOP...........SOUTHWEST 10-20 MPH.

   LAL...1
   HAINES...5

=
$$

.EXTENDED:
.THURSDAY...MOSTLY SUNNY. LITTLE CHANGE IN TEMPS AND RH. SOUTH WIND 10-20 MPH..
.FRIDAY AND SATURDAY...PARTLY CLOUDY AND WINDY. TEMPS UP 2-4 DEGREES WITH RH DOWN ABOUT 5
PERCENT. SOUTH WIND 20-30 MPH...GUSTS TO 40 MPH POSSIBLE SATURDAY.

.6 TO 10 DAY OUTLOOK...ABOVE NORMAL TEMPERATURES WITH NO PRECIPITATION.

NNNN
=
$$
```

Example of a Morning Forecast Issuance from Phoenix

SOUTH-CENTRAL AND SOUTHWEST ARIZONA FIRE WEATHER FORECAST
NATIONAL WEATHER SERVICE PHOENIX AZ
900 AM MST THU APR 13 2000
.....

...BREEZY THIS AFTERNOON...QUITE WINDY AND TURNING MUCH COOLER ON FRIDAY...
...FIRE WEATHER WATCH FRIDAY ZONES 31...32...33 FOR STRONG WINDS...LOW HUMIDITIES AND LOW FUEL MOISTURES...

.SYNOPSIS FOR SOUTHWEST AND SOUTH-CENTRAL ARIZONA...
HIGH PRESSURE WILL CONTINUE OVER SOUTHWEST AND SOUTH-CENTRAL ARIZONA TODAY...BUT WILL GIVE WAY TO A LOW PRESSURE SYSTEM AND COLD FRONT ON FRIDAY. WINDY AND MUCH COOLER WEATHER IS EXPECTED TO MOVE IN FRIDAY ...WITH A CHANCE OF SHOWERS ONLY IN NORTHERN ARIZONA. COOL AND BREEZY CONDITIONS WILL LINGER SATURDAY. HIGH PRESSURE WILL RETURN TO SOUTHWEST AND SOUTH-CENTRAL ARIZONA SUNDAY...BUT IT WILL MOVE RAPIDLY EASTWARD AS ANOTHER LOW PRESSURE SYSTEM APPROACHES FROM THE WEST...WITH A SOUTHWEST WIND ALOFT BRINGING IN HIGH CLOUDS ON MONDAY...WITH THE SURFACE WIND INCREASING AGAIN IN FAR SOUTHWEST ARIZONA MONDAY AFTERNOON.

ZONE 32
AZZ021>023-026>028-132200-
WEST CENTRAL DESERTS-NORTHWEST MARICOPA COUNTY-GREATER PHOENIX AREA-
SOUTHWEST DESERTS-SOUTHWEST MARICOPA COUNTY-CENTRAL DESERTS-
PHOENIX BLM/YUMA BLM/CAZ-CRZ-
900 AM MST THU APR 13 2000

...FIRE WEATHER WATCH FROM NOON TO 7 PM FRIDAY...

.TODAY...
SKY/WEATHER...MOSTLY SUNNY.
MAX TEMPS...IN THE 90S.
24 HR TRENDS...UP 2 TO 3 DEG.
MIN RH...8 TO 13 PCT
24 HR TRENDS...LITTLE CHANGE.
WINDS...
SLOPE/VALLEY...EASTERN PORTIONS: BECOMING UPSLOPE/UPVALLEY 5 TO 15 MPH...LOCALLY SOUTHWEST 10 TO 20 MPH DURING THE AFTERNOON...WESTERN PORTIONS: BECOMING SOUTHWEST 8 TO 18 MPH...LOCALLY 12 TO 22 MPH...DURING THE AFTERNOON.
RIDGE TOP...BECOMING SOUTHWEST 10 TO 20 MPH...LOCALLY 15 TO 25 MPH...DURING THE AFTERNOON.
LAL...1
CHANCE OF WETTING RAIN...0 PCT.

.TONIGHT...
SKY/WEATHER...MOSTLY CLEAR.
MIN TEMPS...LOW 50S TO MID 60S.
24 HR TRENDS...LITTLE CHANGE.
MAX RH...20 TO 35 PCT.
24 HR TRENDS...LITTLE CHANGE.
WINDS...
SLOPE/VALLEY...BECOMING VARIABLE TO DOWNSLOPE/DOWNVALLEY 5 TO 10 MPH FAVORING WEST...LOCALLY WEST 10 TO 15 MPH TOWARD MORNING WEST PORTIONS.
RIDGE TOP...WEST TO SOUTHWEST 5 TO 10 MPH...INCREASING TO 10 TO 20 MPH TOWARD MORNING WEST PORTIONS.
LAL...1
CHANCE OF WETTING RAIN...0 PCT.

.TOMORROW...
SKY/WEATHER...PARTLY CLOUDY. BECOMING WINDY BY NOON...WITH SOME BLOWING DUST POSSIBLE. MUCH COOLER.
MAX TEMP TRENDS...DOWN 10 TO 12 DEG.
MIN RH TRENDS...UP 3 TO 8 PCT.
WINDS...
SLOPE/VALLEY...BECOMING SOUTHWEST TO WEST 15 TO 30 MPH DURING THE AFTERNOON WITH LOCALLY HIGHER GUSTS.
RIDGE TOP...BECOMING WEST 15 TO 30 MPH WITH LOCALLY HIGHER GUSTS.

.EXTENDED FORECAST...
.SATURDAY...MOSTLY CLEAR. LOWS FROM THE MID 40S TO UPPER 50S. HIGHS
IN THE 80S.
.SUNDAY...MOSTLY CLEAR. LOWS FROM THE UPPER 40S TO LOW 60S. WARMER.
HIGHS FROM THE UPPER 80S TO LOW 90S.
.MONDAY...PARTLY CLOUDY. LOWS FROM THE LOW 50S TO LOW 60S. HIGHS FROM
THE UPPER 80S TO MID 90S.

$$

ZONE 33
AZZ024-132200-
SOUTHERN GILA COUNTY/TONTO NATIONAL FOREST FOOTHILLS-
SOUTHERN TONTO NF/WEST SAN CARLOS BIA/SOUTH PORTION FT APACHE BIA/
CAZ-
900 AM MST THU APR 13 2000

...FIRE WEATHER WATCH FROM NOON TO 7 PM FRIDAY...

.TODAY...
  SKY/WEATHER...MOSTLY SUNNY.
  MAX TEMPS...UPPER 70S TO AROUND 90.
    24 HR TRENDS...UP 3 TO 5 DEG.
  MIN RH...10 TO 15 PCT.
    24 HR TRENDS...DOWN 1 TO 3 PCT.
  WINDS...
    SLOPE/VALLEY...BECOMING UPSLOPE/UPVALLEY TO SOUTHWEST 10 TO 15
                   MPH...LOCALLY SOUTHWEST 10 TO 20 MPH DURING THE
                   AFTERNOON.
    RIDGE TOP...BECOMING SOUTHWEST 10 TO 20 MPH...LOCALLY 15 TO 25
                MPH...DURING THE AFTERNOON.
  LAL...1
  CHANCE OF WETTING RAIN...0 PCT.

.TONIGHT...
  SKY/WEATHER...MOSTLY CLEAR.
  MIN TEMPS...LOW 40S TO MID 50S.
    24 HR TRENDS...LITTLE CHANGE.
  MAX RH...40 TO 50 PCT.
    24 HR TRENDS...DOWN 1 TO 3 PCT.
  WINDS...
    SLOPE/VALLEY...BECOMING MOSTLY DOWNSLOPE/DOWNVALLEY TO WEST 5 TO
                   10 MPH.
    RIDGE TOP...BECOMING LIGHT WEST...LOCALLY 10 TO 15 MPH TOWARD
                MORNING.
  LAL...1
  CHANCE OF WETTING RAIN...0 PCT.

.TOMORROW...
  SKY/WEATHER...P
ARTLY CLOUDY. BECOMING WINDY BY NOON. MUCH COOLER.
  MAX TEMP TRENDS...DOWN AROUND 10 DEG.
  MIN RH TRENDS...DOWN 3 TO 5 PCT.
  WINDS...
    SLOPE/VALLEY...BECOMING SOUTHWEST TO WEST 20 TO 30 MPH...WITH A
FEW HIGHER GUSTS...DURING THE AFTERNOON.
    RIDGE TOP...BECOMING SOUTHWEST TO WEST 20 TO 30 MPH...LOCALLY 25
TO 35 MPH...BY AFTERNOON.

.EXTENDED FORECAST...
.SATURDAY...MOSTLY CLEAR. LOWS IN THE 40S. HIGHS FROM THE UPPER 60S
TO UPPER 70S.
.SUNDAY...MOSTLY CLEAR. LOWS FROM THE LOW 40S TO THE LOW 50S. WARMER.
HIGHS FROM THE MID 70S TO MID 80S.
.MONDAY...PARTLY CLOUDY. LOWS FROM THE LOW 40S TO MID 50S. HIGHS FROM
THE UPPER 70S TO UPPER 80S.

$$

ZONE 31
AZZ020-025-132200-
YUMA/MARTINEZ LAKE AND VICINITY-LOWER COLORADO RIVER VALLEY AZ-
YUMA BLM/CRZ-
900 AM MST THU APR 13 2000

...FIRE WEATHER WATCH FROM 10 AM TO 9 PM FRIDAY...

.TODAY...
SKY/WEATHER...MOSTLY SUNNY.
MAX TEMPS...MID TO UPPER 90S.
24 HR TRENDS...LITTLE CHANGE.
MIN RH...8 TO 15 PCT.
24 HR TRENDS...LITTLE CHANGE.
WINDS...
SLOPE/VALLEY...BECOMING SOUTH TO SOUTHWEST 8 TO 15 MPH...LOCALLY 10 TO 20 MPH...DURING THE AFTERNOON.
LAL...1
CHANCE OF WETTING RAIN...0 PCT.

.TONIGHT...
SKY/WEATHER...PARTLY CLOUDY.
MIN TEMPS...MID 50S TO MID 60S.
24 HR TRENDS...LITTLE CHANGE.
MAX RH...22 TO 32 PCT.
24 HR TRENDS...DOWN 3 TO 5 PCT.
WINDS...
SLOPE/VALLEY...SOUTHWEST TO WEST 5 TO 15 MPH...LOCALLY WEST TO NORTHWEST 10 TO 20 MPH TOWARD MORNING.
LAL...1
CHANCE OF WETTING RAIN...0 PCT.

.TOMORROW...
SKY/WEATHER...PARTLY CLOUDY. BREEZY IN THE MORNING...BUT BECOMING WINDY BY NOON WITH BLOWING DUST OR SAND POSSIBLE. MUCH COOLER.
MAX TEMP TRENDS...DOWN 10 TO 12 DEG.
MIN RH TRENDS...UP 4 TO 8 PCT.
WINDS...
SLOPE/VALLEY...BECOMING WEST TO NORTHWEST 20 TO 30 MPH...LOCALLY 25 TO 35 MPH.

.EXTENDED FORECAST...
.SATURDAY...MOSTLY CLEAR. LOWS IN THE 50S. HIGHS IN THE MID TO UPPER 80S.
.SUNDAY...MOSTLY CLEAR. LOWS FROM 50 TO 60. A LITTLE WARMER. HIGHS FROM THE UPPER 80S TO LOW 90S.
.MONDAY...PARTLY CLOUDY. LOCALLY WINDY. LOWS FROM THE MID 50S TO LOW 60S. HIGHS FROM THE MID 80S TO AROUND 90.

$$

HAINES INDEX...

YUMA.....5

HAINES INDEX POTENTIAL FOR LARGE FIRES...

2 or 3.....VERY LOW
4.....LOW
5.....MODERATE
6.....HIGH

VENTILATION DATA...

	VENTILATION	MIXING HEIGHT	TRANSPORT WINDS
YUMA.....	EXCELLENT	10000 FEET	SOUTHWEST 14 KNOTS

OUTLOOK FOR TOMORROW...EXCELLENT VENTILATION.

Truncated Example of a Morning Forecast Issuance from Flagstaff
ROUTINE FIRE WEATHER FORECAST FORMAT (Morning Forecast)

NORTHERN ARIZONA FIRE WEATHER FORECAST
NATIONAL WEATHER SERVICE FLAGSTAFF AZ
730 AM MST SAT APR 14 2001

RIDGE TOP WINDS ARE 10,000 FOOT WINDS
THUNDERSTORMS IMPLY GUSTY AND ERRATIC WINDS

##

.SYNOPSIS FOR NORTH CENTRAL AND NORTHEAST ARIZONA...
A DEVELOPING TROF OVER THE EASTERN PACIFIC WILL PRODUCE SOUTHWEST FLOW ALOFT ACROSS THE REGION INTO THE WEEKEND. SUBTROPICAL MOISTURE CAUGHT IN THE FLOW WILL MOVE THROUGH THE REGION. THIS MOISTURE IS MAINLY HIGH LEVEL AND NO PRECIPITATION IS EXPECTED. TEMPERATURES WILL REMAIN ABOVE NORMAL THROUGH THE WEEKEND AND HUMIDITIES LOWER THAN NORMAL FOR THIS TIME OF YEAR. WINDS WILL BE SOUTHWESTERLY AND BREEZY DURING THE AFTERNOONS OVER THE RIDGE TOPS.

VENTILATION WILL BE POOR DURING THE MORNING HOURS BUT WILL IMPROVE TO THE GOOD CATEGORY IN THE AFTERNOONS.

ZONE 303 (FWX ZONES 6-7-12-18-22)
AZZ004>006-015-038-142200-
GRAND CANYON COUNTRY-MARBLE AND GLEN CANYONS-KAIBAB PLATEAU-
WESTERN MOGOLLON RIM-OAK CREEK AND SYCAMORE CANYONS-
INCLUDING GRAND CANYON VILLAGE...SUPAI...NO. RIM...PAGE...LEES FERRY...JACOB LAKE...FREDONIA...FLAGSTAF...WILLIAMS...MUNDS PARK...SEDONA...
VILLAGE OF OAK CREEK...
730 AM MST SAT APR 14 2001

.TODAY...
SKY/WEATHER: PARTLY CLOUDY
MAXIMUM TEMPS: (6000 TO 8000 FEET) 54 TO 64 TRENDS: UP 3 DEGREES
(4000 TO 6000 FEET) 63 TO 73 TRENDS: UP 5 DEGREES
MINIMUM RH: (6000 TO 8000 FEET) 16 TO 21 PERCENT TRENDS: LITTLE CHANGE
(4000 TO 6000 FEET) 12 TO 17 PERCENT TRENDS: LITTLE CHANGE
WINDS (SLOPE/VALLEY): SOUTH 5 TO 10 MPH.
WINDS (RIDGETOP): SOUTHWEST 15 TO 25 MPH.
LAL: 1
CHANCE OF WETTING RAIN: 0 PERCENT

.TONIGHT...
SKY/WEATHER: MOSTLY CLOUDY
MINIMUM TEMPS: (6000 TO 8000 FEET) 32 TO 41 TRENDS: UP 3 DEGREES
(4000 TO 6000 FEET) 39 TO 49 TRENDS: UP 6 DEGREES
MAXIMUM RH: (6000 TO 8000 FEET) 51 TO 74 PERCENT TRENDS: LITTLE CHANGE
(4000 TO 6000 FEET) 41 TO 57 PERCENT TRENDS: LITTLE CHANGE
WINDS (SLOPE/VALLEY): DOWNSLOPE/DOWNVALLEY 3 TO 7 MPH.
WINDS (RIDGETOP): SOUTHWEST 5 TO 15 MPH.
LAL: 1
CHANCE OF WETTING RAIN: 0 PERCENT

.TOMORROW...
SKY/WEATHER: PARTLY CLOUDY.
MAXIMUM TEMPS: (6000 TO 8000 FEET) LITTLE CHANGE
(4000 TO 6000 FEET) LITTLE CHANGE
MINIMUM RH: (6000 TO 8000 FEET) LITTLE CHANGE
(4000 TO 6000 FEET) LITTLE CHANGE
WINDS (SLOPE/VALLEY): SOUTHWEST 5 TO 15 MPH.
WINDS (RIDGETOP): SOUTHWEST 15 TO 25 MPH.
$$

...
...
{Other zones follow}
...
...

$$
==========
HAINES INDEX...
FLAGSTAFF...4

VENTILATION DATA...

	VENTILATION	MIXING HEIGHT	TRANSPORT WIND
FLAGSTAFF...	POOR AM	600 FT AGL	SOUTHWEST 10 KTS
	GOOD PM	3200 FT AGL	SOUTHWEST 15 TO 20 KTS

$$

Example of a Morning Forecast Issuance from Tucson

SOUTHEAST ARIZONA FIRE WEATHER FORECAST
NATIONAL WEATHER SERVICE TUCSON AZ
630 AM MST THU APR 13 2000

DISCUSSION...HIGH PRESSURE WILL CONTINUE OVERHEAD TODAY...RESULTING
IN ANOTHER VERY WARM AFTERNOON WITH LOW RH VALUES AND NORMAL DIURNAL WINDS.
A PACIFIC STORM WILL MOVE INTO THE GREAT BASIN FRIDAY AND SATURDAY AND
BRING INCREASED WINDS ALONG WITH SOME COOLING. THAT WILL BE FOLLOWED BY
ANOTHER RIDGE OF HIGH PRESSURE AND A RETURN TO VERY WARM AFTERNOONS
SUNDAY AND MONDAY.

ZONE 46
AZZ019-132200-
NORTHERN GREENLEE COUNTY-GRAHAM COUNTY NORTH OF GILA RIVER-
APACHE NF/SAN CARLOS BIA/WMZ-
630 AM MST THU APR 13 2000

.TODAY...
  SKY/WEATHER...SUNNY.
  MAX TEMPERATURES...
   BELOW 5000 FEET: 65 TO 75.
   ABOVE 5000 FEET: 55 TO 65.
   24 HR TREND: UP 2 TO 4 DEG.
  MIN HUMIDITY...
   BELOW 5000 FEET: 15 TO 22 PCT.
   ABOVE 5000 FEET: 22 TO 28 PCT.
   24 HR TREND: LITTLE CHANGE.
  WINDS 10 MIN 20 FT...
   SLOPE/VALLEY...UPSLOPE/UPVALLEY 6 TO 12 MPH.
   RIDGETOP...SOUTHWEST 10 TO 15 MPH.
  LAL...1.
  CHANCE OF WETTING RAIN...0 PCT.

.TONIGHT....
  SKY/WEATHER...MOSTLY CLEAR.
  MIN TEMPERATURES...
   BELOW 5000 FEET: 35 TO 40.
   ABOVE 5000 FEET: 30 TO 35.
   24 HR TREND: UP 2 TO 4 DEG.
  MAX HUMIDITY...
   BELOW 5000 FEET: 40 TO 50 PCT.
   ABOVE 5000 FEET: 50 TO 60 PCT.
   24 HR TREND: DOWN 3 TO 5 PCT.
  WINDS 10 MIN 20 FT...
   SLOPE/VALLEY...DOWNSLOPE/DOWNVALLEY 5 TO 10 MPH.
   RIDGETOP...SOUTHWEST 10 TO 20 MPH
  LAL...1.

CHANCE OF WETTING RAIN...0 PCT.

.TOMORROW...
SKY/WEATHER...SUNNY.
MAX TEMPERATURES...
BELOW 5000 FEET: 60 TO 70.
ABOVE 5000 FEET: 55 TO 60.
24 HR TREND: DOWN 4 TO 6 DEG.
MIN HUMIDITY...
BELOW 5000 FEET: 17 TO 24 PCT.
ABOVE 5000 FEET: 24 TO 30 PCT.
24 HR TREND: LITTLE CHANGE.
WINDS 10 MIN 20 FT...
SLOPE/VALLEY...BECOMING SOUTHWEST 15 TO 25 MPH.
RIDGETOP...INCREASING SOUTHWEST 25 TO 35 MPH.

$$

ZONE 47
AZZ029-031-032-132200-
SOUTHEAST PINAL COUNTY-WESTERN PIMA COUNTY-TOHONO OODHAM NATION-
CORONADO NF/PAPAGO BIA/SEZ-
630 AM MST THU APR 13 2000

.TODAY...
SKY/WEATHER...SUNNY.
MAX TEMPERATURES...
BELOW 5000 FEET...85 TO 95.
ABOVE 5000 FEET...70 TO 85.
24 HR TREND: UP 2 TO 4 DEG.
MIN HUMIDITY...
BELOW 5000 FEET...6 TO 16 PCT.
ABOVE 5000 FEET...13 TO 23 PCT.
24 HR TREND: LITTLE CHANGE.
WINDS 10 MIN 20 FT..
SLOPE/VALLEY...SOUTHWEST 5 TO 15 MPH.
RIDGETOP...SOUTHWEST 15 MPH.
LAL...1.
CHANCE OF WETTING RAIN...0 PCT.

.TONIGHT....
SKY/WEATHER...MOSTLY CLEAR.
MIN TEMPERATURES...
BELOW 5000 FEET...45 TO 55.
ABOVE 5000 FEET...35 TO 45.
24 HR TREND: LITTLE CHANGE.
MAX HUMIDITY...
BELOW 5000 FEET...25 TO 35 PCT.
ABOVE 5000 FEET...35 TO 50 PCT.
24 HR TREND: DOWN 4 TO 6 PCT.
WINDS 10 MIN 20 FT..
SLOPE/VALLEY...DOWNSLOPE/DOWNVALLEY 4 TO 8 MPH.
RIDGETOP...SOUTHWEST 10 TO 20 MPH.
LAL...1.
CHANCE OF WETTING RAIN...0 PCT.

.TOMORROW...
SKY/WEATHER...SUNNY.
MAX TEMPERATURES...
BELOW 5000 FEET...80 TO 90.
ABOVE 5000 FEET...65 TO 80.
24 HR TREND: DOWN 4 TO 6 DEG.
MIN HUMIDITY...
BELOW 5000 FEET...8 TO 16 PCT.
ABOVE 5000 FEET...15 TO 23 PCT.
24 HR TREND: LITTLE CHANGE.
WINDS 10 MIN 20 FT...
SLOPE/VALLEY...SOUTHWEST 15 TO 20 MPH AND GUSTY.
RIDGETOP...INCREASING SOUTHWEST 25 TO 35 MPH.

```
  LAL...1.
  CHANCE OF WETTING RAIN...0 PCT.

$$

ZONE 48
AZZ030-033>035-132200-
GRAHAM COUNTY SOUTH OF GILA RIVER-TUCSON METRO/MARANA/GREEN
VALLEY-SANTA CRUZ COUNTY-COCHISE COUNTY-CORONADO NF/SAFFORD
BLM/SEZ-
630 AM MST THU APR 13 2000

.TODAY...
  SKY/WEATHER...SUNNY.
  MAX TEMPERATURES...
   BELOW 5000 FEET...82 TO 92.
   ABOVE 5000 FEET...72 TO 82.
   24 HR TREND: UP 2 TO 4 DEG.
  MIN HUMIDITY...
   BELOW 5000 FEET...10 TO 15 PCT.
   ABOVE 5000 FEET...13 TO 22 PCT.
   24 HR TREND: LITTLE CHANGE.
  WINDS 10 MIN 20 FT...
   SLOPE/VALLEY...UPSLOPE/UPVALLEY 8 TO 15 MPH.
   RIDGETOP...SOUTHWEST 15 MPH.
  LAL...1.
  CHANCE OF WETTING RAIN...0 PCT.

.TONIGHT....
  SKY/WEATHER...MOSTLY CLEAR.
  MIN TEMPERATURES...
    BELOW 5000 FEET...45 TO 55.
    ABOVE 5000 FEET...32 TO 45.
    24 HR TREND: UP 1 TO 3 DEG.
  MAX HUMIDITY...
   BELOW 5000 FEET...30 TO 40 PCT.
   ABOVE 5000 FEET...40 TO 60 PCT.
   TRENDS: DOWN 4 TO 6 PCT.
  WINDS 10 MIN 20 FT...
   SLOPE/VALLEY...DOWNSLOPE/DOWNVALLEY 5 TO 10 MPH.
   RIDGETOP...SOUTHWEST 10 TO 20 MPH.
  LAL...1.
  CHANCE OF WETTING RAIN...0 PCT.

.TOMORROW...
  SKY/WEATHER...SUNNY.
  MAX TEMPERATURES...
   BELOW 5000 FEET...77 TO 87.
   ABOVE 5000 FEET...67 TO 77.
   24 HR TREND: DOWN 4 TO 6 DEG.
  MIN HUMIDITY...
   BELOW 5000 FEET...12 TO 17 PCT.
   ABOVE 5000 FEET...15 TO 24 PCT.
   24 HR TREND: UP 1 TO 3 PCT.
  WINDS 10 MIN 20 FT...
   SLOPE/VALLEY...BECOMING SOUTHWEST 15 TO 25 MPH AND GUSTY.
   RIDGETOP...INCREASING SOUTHWEST 25 TO 35 MPH.
  LAL...1.
  CHANCE OF WETTING RAIN...0 PCT.

$$

########################################################################
.EXTENDED:
3 TO 5 DAYS...
.SATURDAY THROUGH MONDAY...MOSTLY CLEAR AND WARMER. LOWS IN THE UPPER 20S
MOUNTAINS TO UPPER 50S DESERTS. HIGHS IN THE UPPER 50S MOUNTAINS TO
LOWER AND MIDDLE 90S WESTERN DESERTS.
```

NO SIGNIFICANT WINDS ABOVE 15 MPH EXPECTED.

OUTLOOK:
6 TO 10 DAYS...NEAR NORMAL TEMPERATURES AND NO PRECIPITATION.

##
HAINES INDEX:

TUCSON...4 LOW.

HAINES INDEX POTENTIAL FOR LARGE FIRE:

2 OR 3.......VERY LOW
4............LOW
5............MODERATE
6............HIGH

VENTILATION DATA...

	ELEVATION	VENTILATION	MIXING HEIGHT	TRANSPORT WINDS
TUCSON.....	2555 FT	VERY GOOD	10900 FEET	SOUTH 7 KNOTS

OUTLOOK FOR TOMORROW...INCREASED VENTILATION.

END FWTWC 0630 MST THU 04/13/00

Example of an Afternoon Forecast Issuance from Las Vegas

FNUS55 KVEF DDHHMM
FWFLAS

FIRE WEATHER FORECAST FOR SOUTHERN NEVADA AND NORTHWEST ARIZONA
NATIONAL WEATHER SERVICE LAS VEGAS NV
300 PM MDT TUE MAY 1 2001

...HEADLINE... (Strongly recommended...REQUIRED for Red Flag Warnings and Fire Weather Watches.)

.DISCUSSION...(MANDATORY ELEMENT - concise explanation of the current/forecasted fire weather)

ZONE 1
AZZ002-036-012200-
LAKE HAVASU AND FORT MOJAVE-LAKE MEAD NATIONAL RECREATION AREA-
YUMA BLM/CAZ-CRZ-
300 PM PDT (300 PM MST) TUE MAY 1 2001

...RED FLAG WARNING/FIRE WEATHER WATCH HEADLINE (as needed in each appropriate zone grouping) ...

.TONIGHT
SKY/WEATHER.....PARTLY CLOUDY WITH A 30 PERCENT CHANCE OF EVENING THUNDERSTORMS.
MIN TEMPERATURE...60-66.
24 HR TREND: UP 2-3.
MAX HUMIDITY.....32-40%.
24 HR TREND: DOWN 3-4%.
WIND - 20 FT
SLOPE/VALLEY...DOWNSLOPE/DOWNVALLEY 4-8 MPH.

LAL...3
HAINES...5

VENTILATION...BECOMING POOR
MIXING HEIGHT...FALLING BELOW 1000 FT AGL.
TRANSPORT WIND...SAME AS LOCAL 20 FT WIND.

.WEDNESDAY

```
   SKY/WEATHER...........PARTLY CLOUDY WITH A 30 PERCENT CHANCE OF AFTERNOON
                                        THUNDERSTORMS.
   MAX TEMPERATURE...82-90.
      24 HR TREND:         UP 2-3.
   MIN HUMIDITY.............12-18%.
      24 HR TREND:  DOWN 3-4%.
   WIND - 20 FT
        SLOPE/VALLEY...SOUTH 8-14 MPH.

   LAL...3
   HAINES...5

   VENTILATION...EXCELLENT
   MIXING HEIGHT...15000 FT MSL.
   TRANSPORT WIND...SOUTHWEST 12 MPH

.WEDNESDAY NIGHT
   SKY/WEATHER...........MOSTLY CLEAR.
   MIN TEMPERATURE...60-66.
   MAX HUMIDITY...........32-40%.
   WIND - 20 FT
       SLOPE/VALLEY...DOWNSLOPE/DOWNVALLEY 4-8 MPH.

   LAL...1
   HAINES...4

.THURSDAY
   SKY/WEATHER...........MOSTLY SUNNY.
   MAX TEMPERATURE...84-92.
   MIN HUMIDITY.............10-16%.
   WIND - 20 FT
       SLOPE/VALLEY...SOUTH 8-14 MPH.

   LAL...1
   HAINES...5

=
$$

ZONE 2
AZZ001-003-012200-
NORTHWEST PLATEAU-NORTHWEST DESERTS-
ST GEORGE BLM/TRUXTON CANYON BIA/GCZ-CAZ-
300 PM PDT (300 PM MST) TUE MAY 1 2001

.TONIGHT
      SKY/WEATHER...........PARTLY CLOUDY WITH A 30 PERCENT CHANCE OF EVENING
                                          THUNDERSTORMS.
      MIN TEMPERATURE:    4000 FEET...57-62
                            7000 FEET...50-55.
                                  24 HR TREND:  UP 2-3.
      MAX HUMIDITY:         4000 FEET...32-40%.
                            7000 FEET...38-45%.
                                  24 HR TREND:  DOWN 3-4%.
      WIND - 20 FT
           SLOPE/VALLEY...DOWNSLOPE/DOWNVALLEY 4-8 MPH.
      LAL...3
      HAINES...5

      VENTILATION...BECOMING POOR
      MIXING HEIGHT...FALLING BELOW 1000 FT AGL.
      TRANSPORT WIND...SAME AS LOCAL 20 FT WIND.

.WEDNESDAY
   SKY/WEATHER...........PARTLY CLOUDY WITH A 40 PERCENT CHANCE OF AFTERNOON
                                        THUNDERSTORMS.
   MAX TEMPERATURE:     4000 FEET...76-80.
                               7000 FEET...68-72.
                        24 HR TREND:  UP 2-3.
```

```
   MIN HUMIDITY:              4000 FEET...15-20%.
                      7000 FEET...19-24%.
                      24 HR TREND:  DOWN 3-4%.
   WIND - 20 FT
        SLOPE/VALLEY...SOUTH 8-14 MPH.
        RIDGETOPS.........SOUTHWEST 12-20 MPH.
   LAL...4
   HAINES...5

   VENTILATION...EXCELLENT
   MIXING HEIGHT...15000 FT MSL.
   TRANSPORT WIND...SOUTHWEST 15 MPH

.WEDNESDAY NIGHT
   SKY/WEATHER..........MOSTLY CLEAR.
   MIN TEMPERATURE:     4000 FEET...57-62.
                        7000 FEET...50-55.
   MAX HUMIDITY: 4000 FEET...32-40%.
                        7000 FEET...38-45%
   WIND - 20 FT
       SLOPE/VALLEY...DOWNSLOPE/DOWNVALLEY 4-8 MPH.
       RIDGETOP..........SOUTHWEST 10-15 MPH.
   LAL...1
   HAINES...4

.THURSDAY
   SKY/WEATHER...........MOSTLY SUNNY.
   MAX TEMPERATURE:     4000 FEET...76-80.
                        7000 FEET...68-72.
   MIN HUMIDITY:        4000 FEET...15-20%.
                        7000 FEET...19-24%.
   WIND - 20 FT
       SLOPE/VALLEY...SOUTH 8-14 MPH.
       RIDGETOP..........SOUTHWEST 10-20 MPH.

   LAL...1
   HAINES...5

=
$$

.EXTENDED:
.THURSDAY...MOSTLY SUNNY. LITTLE CHANGE IN TEMPS AND RH. SOUTH WIND 10-20 MPH..
.FRIDAY AND SATURDAY...PARTLY CLOUDY AND WINDY. TEMPS UP 2-4 DEGREES WITH RH DOWN ABOUT 5
PERCENT. SOUTH WIND 20-30 MPH...GUSTS TO 40 MPH POSSIBLE SATURDAY.

.6 TO 10 DAY OUTLOOK...ABOVE NORMAL TEMPERATURES WITH NO PRECIPITATION.

NNNN
=
$$
```

Example of an Afternoon Forecast Issuance from Tucson

```
SOUTHEAST ARIZONA FIRE WEATHER FORECAST
NATIONAL WEATHER SERVICE TUCSON AZ
300 PM MST THU APR 13 2000

...FIRE WEATHER WATCH FRIDAY FOR ALL ELEVATIONS OF SOUTHEAST ARIZONA
FOR STRONG WINDS...VERY LOW HUMIDITIES AND HIGH FIRE DANGER...

DISCUSSION...LOW MOVING INTO THE GREAT BASIN WILL GENERATE WINDY GRADIENT WINDS OUT OF
THE SOUTHWEST ON FRIDAY. WITH CONTINUED LOW HUMIDITIES AND HIGH FIRE DANGER THERE IS A
STRONG POTENTIAL FOR RED FLAG CONDITIONS. NO RAIN WITH THIS SYSTEM. GRADIENT WEAKENS TO
BREEZY LEVELS SATURDAY WITH MORE COOLING. A RIDGE RETURNS SUNDAY FOR CONTINUED DRY AND
ANOTHER WARMING TREND INTO EARLY NEXT WEEK.

ZONE 46
AZZ019-141330-
```

NORTHERN GREENLEE COUNTY-GRAHAM COUNTY NORTH OF GILA RIVER-
APACHE NF/SAN CARLOS BIA/WMZ-
300 PM MST THU APR 13 2000

.TONIGHT....
SKY/WEATHER...MOSTLY CLEAR.
MIN TEMPERATURES...
BELOW 5000 FEET...28 TO 34.
ABOVE 5000 FEET...34 TO 39.
24 HR TREND: UP 1 TO 3 DEG.
MAX HUMIDITY...
BELOW 5000 FEET...40 TO 50 PCT
ABOVE 5000 FEET...50 TO 60 PCT
24 HR TREND: DOWN 4 TO 6 PCT.
WINDS 10 MIN 20 FT...
SLOPE/VALLEY...DOWNSLOPE/DOWNVALLEY 4 TO 8 MPH.
RIDGETOP...SOUTHWEST 10 TO 20 MPH
LAL...1.
CHANCE OF WETTING RAIN...0 PCT.

...FIRE WEATHER WATCH FRIDAY...
.TOMORROW....
SKY/WEATHER...WINDY AND PARTLY CLOUDY.
MAX TEMPERATURES...
BELOW 5000 FEET...52 TO 57.
ABOVE 5000 FEET...57 TO 62.
24 HR TREND: DOWN 3 TO 5 DEG.
MIN HUMIDITY...
BELOW 5000 FEET...12 TO 16 PCT.
ABOVE 5000 FEET...15 TO 20 PCT.
24 HR TREND: UP 1 TO 3 PCT.
WINDS 10 MIN 20 FT...
SLOPE/VALLEY...BECOMING SOUTHWEST 20 TO 30 MPH.
RIDGETOP...SOUTHWEST 30 TO 35 MPH.
LAL...1.
CHANCE OF WETTING RAIN...0 PCT.

.TOMORROW NIGHT...
SKY/WEATHER...BECOMING MOSTLY CLEAR.
MIN TEMPERATURES...
BELOW 5000 FEET...26 TO 32.
ABOVE 5000 FEET...32 TO 36.
24 HR TREND: DOWN 0 TO 3 DEG.
MAX HUMIDITY...
BELOW 5000 FEET...45 TO 55 PCT
ABOVE 5000 FEET...55 TO 65 PCT
24 HR TREND: UP 4 TO 6 PCT.
WINDS 10 MIN 20 FT...
SLOPE/VALLEY...BECOMING WEST AND DECREASING TO 5 TO 15 MPH.
RIDGETOP...WEST NEAR 25 MPH.
LAL...1.
CHANCE OF WETTING RAIN...0 PCT.

.NEXT DAY...
SKY/WEATHER...PARTLY CLOUDY.
MAX TEMPERATURES...
BELOW 5000 FEET...50 TO 55.
ABOVE 5000 FEET...55 TO 60.
24 HR TREND: DOWN 1 TO 3 DEG.
MIN HUMIDITY...
BELOW 5000 FEET...14 TO 18 PCT.
ABOVE 5000 FEET...17 TO 22 PCT.
24 HR TREND: UP 1 TO 3 PCT.
WINDS 10 MIN 20 FT...
SLOPE/VALLEY...WEST TO NORTHWEST 10 TO 20 MPH.
RIDGETOP...WEST TO NORTHWEST 15 TO 20 MPH.
LAL...1.
CHANCE OF WETTING RAIN...0 PCT.

$$

ZONE 47
AZZ029-031-032-141330-
SOUTHEAST PINAL COUNTY-WESTERN PIMA COUNTY-TOHONO OODHAM NATION-
CORONADO NF/PAPAGO BIA/SEZ-
300 PM MST THU APR 13 2000

.TONIGHT....
SKY/WEATHER...CLEAR.
MIN TEMPERATURES...
BELOW 5000 FEET...47 TO 57.
ABOVE 5000 FEET...37 TO 46.
24 HR TREND: UP 1 TO 3 DEG.
MAX HUMIDITY...
BELOW 5000 FEET...23 TO 35 PCT.
ABOVE 5000 FEET...30 TO 42 PCT.
24 HR TREND: DOWN 4 TO 6 PCT.
WINDS 10 MIN 20 FT...
SLOPE/VALLEY...SOUTH TO SOUTHWEST 5 TO 10 MPH.
RIDGETOP...SOUTHWEST 10 TO 20 MPH.
LAL...1.
CHANCE OF WETTING RAIN...0 PCT.

...FIRE WEATHER WATCH FRIDAY...
.TOMORROW....
SKY/WEATHER...PARTLY CLOUDY...WINDY AND COOLER.
MAX TEMPERATURES...
BELOW 5000 FEET...80 TO 88.
ABOVE 5000 FEET...63 TO 79.
24 HR TREND: DOWN 4 TO 6 DEG.
MIN HUMIDITY...
BELOW 5000 FEET...9 TO 17 PCT.
ABOVE 5000 FEET...14 TO 20 PCT.
TREND: UP 2 TO 3 PCT.
WINDS 10 MIN 20 FT...
SLOPE/VALLEY...SOUTHWEST TO WEST 15 TO 30 MPH.
RIDGETOP...SOUTHWEST TO WEST 20 TO 30 MPH.
LAL...1.
CHANCE OF WETTING RAIN...0 PCT.

.TOMORROW NIGHT...
SKY/WEATHER...BECOMING MOSTLY CLEAR.
MIN TEMPERATURES...
BELOW 5000 FEET...44 TO 54.
ABOVE 5000 FEET...35 TO 44.
24 HR TREND: DOWN 2 TO 3 DEG.
MAX HUMIDITY...
BELOW 5000 FEET...28 TO 40 PCT.
ABOVE 5000 FEET...35 TO 47 PCT.
24 HR TREND: UP 4 TO 6 PCT.
WINDS 10 MIN 20 FT...
SLOPE/VALLEY...WEST DIMINISHING TO 5 TO 10 MPH.
RIDGETOP...WEST TO NORTHWEST 15 TO 20 MPH.
LAL...1.
CHANCE OF WETTING RAIN...0 PCT.

.NEXT DAY...
SKY/WEATHER...MOSTLY SUNNY.
MAX TEMPERATURES...
BELOW 5000 FEET...80 TO 88.
ABOVE 5000 FEET...63 TO 79.
24 HR TREND: LITTLE CHANGE.
MIN HUMIDITY...
BELOW 5000 FEET...9 TO 17 PCT.
ABOVE 5000 FEET...14 TO 20 PCT.
TREND: LITTLE CHANGE.
WINDS 10 MIN 20 FT...
SLOPE/VALLEY...NORTHWEST 5 TO 10 MPH.

```
    RIDGETOP...NORTHWEST NEAR 15 MPH.
  LAL...1.
  CHANCE OF WETTING RAIN...0 PCT.

$$

ZONE 48
AZZ030-033>035-141330-
GRAHAM COUNTY SOUTH OF GILA RIVER-TUCSON METRO/MARANA/GREEN
VALLEY-SANTA CRUZ COUNTY-COCHISE COUNTY-CORONADO NF/SAFFORD
BLM/SEZ-
300 PM MST THU APR 13 2000

.TONIGHT....
  SKY/WEATHER...CLEAR.
  MIN TEMPERATURES...
   BELOW 5000 FEET...45 TO 55.
   ABOVE 5000 FEET...35 TO 45.
   24 HR TREND: UP 1 TO 3 DEG.
  MAX HUMIDITY...
   BELOW 5000 FEET...28 TO 35 PCT.
   ABOVE 5000 FEET...35 TO 55 PCT.
   24 HR TREND: DOWN 4 TO 6 DEG.
  WINDS 10 MIN 20 FT...
   SLOPE/VALLEY...DOWNSLOPE/DOWNVALLEY 4 TO 8 MPH.
   RIDGETOP...SOUTHWEST 10 TO 20 MPH.
  LAL...1.
  CHANCE OF WETTING RAIN...0 PCT.

...FIRE WEATHER WATCH FRIDAY...
.TOMORROW....
  SKY/WEATHER...PARTLY CLOUDY...WINDY AND COOLER.
  MAX TEMPERATURES...
   BELOW 5000 FEET...77 TO 85.
   ABOVE 5000 FEET...63 TO 76.
   24 HR TREND: DOWN 4 TO 6 DEG.
  MIN HUMIDITY...
   BELOW 5000 FEET...12 TO 16 PCT.
   ABOVE 5000 FEET...14 TO 20 PCT.
   24 HR TREND: UP 2 TO 3 PCT.
  WINDS 10 MIN 20 FT...
   SLOPE/VALLEY...SOUTHWEST INCREASING TO 20 TO 30 MPH.
   RIDGETOP...SOUTHWEST 25 TO 35 MPH.
  LAL...1.
  CHANCE OF WETTING RAIN...0 PCT.

.TOMORROW NIGHT...
  SKY/WEATHER...BECOMING MOSTLY CLEAR.
  MIN TEMPERATURES...
   BELOW 5000 FEET...42 TO 52.
   ABOVE 5000 FEET...35 TO 45.
   24 HR TREND: UP 1 TO 3 DEG.
  MAX HUMIDITY...
   BELOW 5000 FEET...33 TO 48 PCT.
   ABOVE 5000 FEET...40 TO 60 PCT.
   24 HR TREND: UP 4 TO 6 DEG.
  WINDS 10 MIN 20 FT...
   SLOPE/VALLEY...SOUTHWEST TO WEST DIMINISHING TO 5 TO 15 MPH.
   RIDGETOP...SOUTHWEST TO WEST 15 TO 20 MPH.
  LAL...1.
  CHANCE OF WETTING RAIN...0 PCT.

.NEXT DAY...
  SKY/WEATHER...MOSTLY SUNNY.
  MAX TEMPERATURES...
   BELOW 5000 FEET...74 TO 83.
   ABOVE 5000 FEET...60 TO 73.
   24 HR TREND: DOWN 2 TO 3 DEG.
  MIN HUMIDITY...
```

BELOW 5000 FEET...14 TO 18 PCT.
ABOVE 5000 FEET...16 TO 22 PCT.
24 HR TREND: UP 2 TO 3 PCT.
WINDS 10 MIN 20 FT...
SLOPE/VALLEY...WEST TO NORTHWEST 10 TO 15 MPH.
RIDGETOP...NORTHWEST NEAR 15 MPH.
LAL...1.
CHANCE OF WETTING RAIN...0 PCT.
WINDS...

$$

##
.EXTENDED:
.SUNDAY AND MONDAY...MOSTLY CLEAR AND WARMER. LOWS IN THE UPPER 20S MOUNTAINS TO UPPER 50S DESERTS. HIGHS IN THE UPPER 50S MOUNTAINS TO LOWER AND MIDDLE 90S WESTERN DESERTS.
.TUESDAY...PARTLY CLOUDY...BREEZY AND COOLER. SOUTHWEST WIND 15 TO 25 MPH IN THE AFTERNOON. LOWS IN THE UPPER 20S MOUNTAINS TO THE 50S DESERTS. HIGHS IN THE 50S MOUNTAINS TO THE MIDDLE AND UPPER 80S WESTERN DESERTS.

OUTLOOK:
6 TO 10 DAYS...DRY WITH ABOVE NORMAL TEMPERATURES.

END FWTWC 1500 MST THU 04/13/00

Example of an Afternoon Forecast Issuance from Flagstaff

ROUTINE FIRE WEATHER FORECAST FORMAT (Afternoon Forecast)

```
NORTHERN ARIZONA FIRE WEATHER FORECAST
NATIONAL WEATHER SERVICE FLAGSTAFF AZ
300 PM MST WED AUG 22 2001

RIDGE TOP WINDS ARE 10,000 FOOT WINDS
THUNDERSTORMS IMPLY GUSTY AND ERRATIC WINDS

####################################################################

...RED FLAG WARNING UNTIL 700 PM MST TONIGHT FOR SECTIONS OF NORTHWEST ARIZONA...FIRE
WEATHER ZONES 6 (KAIBAB PLATEAU)...12 (GRAND CANYON) FOR LOW HUMIDITIES AND STRONG
SOUTHWEST WINDS...

...STRONG WINDS AND LOW HUMIDITIES EXPECTED SATURDAY AND SUNDAY ACROSS MOST OF NORTHERN
ARIZONA...

.SYNOPSIS FOR NORTH CENTRAL AND NORTHEAST ARIZONA...CLOUDS...SHOWERS AND ISOLATED
THUNDERSTORMS WILL BE INCREASING THROUGH THIS MORNING. MOISTURE FROM TROPICAL DEPRESSION
HILARY IS COVERING NORTHERN ARIZONA AND WILL BE SLOW TO CLEAR THE AREA. SCATTERED SHOWERS
AND SOME THUNDERSTORMS ARE LIKELY TO LINGER INTO THE WEEKEND.

ZONE 303 (FWX ZONES 6-7-12-18-22)
AZZ004>006-015-038-231430-
GRAND CANYON COUNTRY-MARBLE AND GLEN CANYONS-KAIBAB PLATEAU-WESTERN MOGOLLON RIM-OAK
CREEK AND SYCAMORE CANYONS-INCLUDING GRAND CANYON VILLAGE...SUPAI...NO. RIM...PAGE...LEES
FERRY...JACOB LAKE...FREDONIA...FLAGSTAF...WILLIAMS...MUNDS PARK...SEDONA...VILLAGE OF
OAK CREEK...
300 PM MST WED AUG 22 2001

...RED FLAG WARNING UNTIL 700 PM MST TONIGHT...

.TONIGHT...
SKY/WEATHER: CLEAR
MINIMUM TEMPS: (6000 TO 8000 FEET)  24 TO 34                 TRENDS: UP 3 DEGREES
                     (4000 TO 6000 FEET)  32 TO 42           TRENDS: UP 5 DEGREES
 MAXIMUM RH: (6000 TO 8000 FEET) 50 TO 70 PERCENT    TRENDS: UP 1 TO 3
             (4000 TO 6000 FEET) 55 to 75 PERCENT    TRENDS: UP 1 TO 3
WINDS (SLOPE/VALLEY): SOUTHWEST WINDS 25 TO 35 MPH THROUGH
                      SUNSET...THEN DECREASING TO 10 TO 20 MPH..
WINDS (RIDGETOP): NORTHWEST 30 TO 40 MPH  THROUGH
                  SUNSET...THEN DECREASING TO 15 TO 25 MPH..
LAL: 1
CHANCE OF WETTING RAIN: 0 PERCENT

.TOMORROW...
SKY/WEATHER: MOSTLY SUNNY.
MAXIMUM TEMPS: (6000 TO 8000 FEET) 58 TO 62                TRENDS: UP 3 DEGREES
               (4000 TO 6000 FEET) 60 TO 65                TRENDS: UP 5 DEGREES
MINIMUM RH:    (6000 TO 8000 FEET) 10 TO 15 PERCENT       TRENDS: UP 2 TO 4
               (4000 TO 6000 FEET) 15 to 20 PERCENT        TRENDS: UP 2 TO 4
WINDS (SLOPE/VALLEY): SOUTHWEST 15 TO 25 MPH
WINDS (RIDGETOP): SOUTHWEST 5 TO 10 MPH.
LAL: 1
CHANCE OF WETTING RAIN: 0 PERCENT

.TOMORROW NIGHT...
SKY/WEATHER: MOSTLY CLEAR
MINIMUM TEMP:  (6000 TO 8000 FEET)    LITTLE CHANGE
                   (4000 TO 6000 FEET)   LITTLE CHANGE
MAXIMUM RH : (6000 TO 8000 FEET)    UP 1 TO 3
               (4000 TO 6000 FEET)   UP 1 TO 3
WINDS (SLOPE/VALLEY): DOWNSLOPE/DOWNVALLEY 3 TO 7 MPH.
WINDS (RIDGETOP): SOUTHWEST 10 TO 15 MPH.

.NEXT DAY...
```

SKY/WEATHER: SUNNY
WINDS (SLOPE/VALLEY): SOUTHWEST 15 TO 25 MPH
WINDS (RIDGETOP): SOUTHWEST 10 TO 20 MPH.
$$

...
[etc]

...
...
$$

[etc]
$$

.OUTLOOK...
3 to 5 DAY...

...STRONG WINDS AND LOW HUMIDITIES EXPECTED SATURDAY AND SUNDAY ACROSS MOST OF NORTHERN ARIZONA...

.SATURDAY THROUGH SUNDAY...PARTLY CLOUDY AND WINDY WITH LOWERING HUMIDITIES. AFTERNOON SOUTHWEST WINDS 20 TO 30 MPH. LOWS FROM THE LOWER 30S IN THE MOUNTAINS TO THE MID 60S ALONG THE COLORADO RIVER. HIGHS FROM THE 60S IN THE MOUNTAINS TO THE UPPER 90S ALONG THE COLORADO RIVER.
. MONDAY..MOSTLY CLOUDY. LOWS FROM THE MID 30S IN THE MOUNTAINS TO THE UPPER 60S ALONG THE COLORADO RIVER. HIGHS FROM THE LOWER 60S IN THE MOUNTAINS TO THE LOWER 90S ALONG THE COLORADO RIVER.
=
$$

6 TO 10 DAY OUTLOOK...
TEMPERATURES ARE EXPECTED TO BE ABOVE NORMAL. LITTLE OR NO PRECIPITATION IS EXPECTED.
=
$$

B New Mexico

Significant Changes From Last Year

- New IMETs at El Paso and Midland, TX.
- New method of requesting spot forecasts via the Internet.
- Site specific ventilation/dispersion data no longer available in spot forecasts from Albuquerque.
- Minor changes to Red Flag Criteria and policy for notifying fire management agencies.

Routine Fire Weather Forecasts (FWF's)

New Mexico fire weather narrative forecasts are issued twice daily during the fire season. The fire season generally includes the period when the Southwest Area is at Preparedness Level 2 or greater (typically about Apr. 1 - Nov. 1). At other times of the year, only a morning narrative will be furnished to support prescribed fire operations.

Forecast Dissemination

Daily narrative forecasts are immediately relayed to WIMS as they are entered into the NWS AWIPS. At the same time, the forecasts are forwarded to an array of Internet sites, including the SWCC Intelligence Section page at **http://svinet2.fs.fed.us/r3/fire/swaintel.htm** and the NWS Albuquerque Fire Weather page at **http://www.srh.noaa.gov/abq/fw-3.htm** . *(A listing of other NWS web sites is in the summary at the end of the operating plan).*

Morning Fire Weather Forecast

A morning fire weather forecast will be issued daily by 0930 MST/MDT. During the off season, this will be the only scheduled fire weather forecast issued. During the fire season, the morning issuance will be one of two scheduled forecasts made per day, and the one upon which the most emphasis will be placed.

In-Season Issuance

The in-season narrative forecast will contain a synopsis, a forecast for the following 36 hours, a 3-5 day extended outlook, and any appropriate watches or warnings. Separate 36 hour forecasts will be provided for each of the twelve "Fire Weather Narrative Zones". (See Fig. 4, pg. 61). These zones are a hybrid of existing NFDRS zones, dispatch zones, New Mexico public forecast zones and major land management areas. Each zone will receive: A narrative forecast, specific forecasts of temperatures and chances of wetting rainfall at two or three separate locations within the zone (at different elevations, where possible), and mean areal forecasts of mid-slope relative humidity (RH), lightning activity level (LAL), Haines Index, and 10,000 foot winds. Fire management agencies must recognize that the forecasts are meant to represent average conditions

across the zones. All of the above data will be provided in three separate 12 hour increments (Today, Tonight, Tomorrow). *See the fire weather forecast examples starting on page 61.*

Off-Season Issuance

For the off-season, the format will be exactly as described above, but with the following differences: The forecasts for LAL and Haines Index will be eliminated from each zone and ventilation data for select atmospheric sounding locations will be added towards the bottom of the forecast as an aid to smoke management activities. Observed ventilation data will be included for Albuquerque, El Paso, Amarillo and Midland along with forecast ventilation categories for those locations for the next day. *See the fire weather forecast examples starting on page 61.*

Afternoon Fire Weather Forecast

The afternoon fire weather forecast will be issued by 1430 MST/MDT during the normal fire season only. It will be the same as the morning forecast issued during the fire season, but will have a minimum of only two forecast periods (Tonight and Tomorrow). The intent of the afternoon FWF is to provide an update to the morning forecast based on more recent meteorological data. *See the fire weather forecast examples starting on page 61.*

General FWF Format Guidelines

- The NWS headers for each FWF zone will contain a geographic area descriptor, along with the predominant managed lands and the appropriate dispatch zone(s) that the forecast applies to.
- Forecasts for temp, RH and Haines Index in the tabular format represent maximum or minimum values for the noted time frame. Also, the RH and Haines forecasts represent average max or min conditions over the forecast zone. RH values especially may vary by plus or minus 5-10 % for elevations and aspects that vary dramatically from the areal mean.
- Ventilation data given is representative of the maximum mixing expected during the afternoon, and is not representative of the average conditions throughout the day. Additionally, this data is valid only at or near the forecast site. Ventilation data is not given for overnight periods, as it most always becomes poor due to developing nighttime inversions.
- With regard to precipitation forecasts, it is important to understand that "chances for precipitation" refer to the likelihood of "wetting rainfall" (.01" or better). Especially in the late spring and early summer, the forecasts may refer to scattered thunderstorms (30-50% coverage) with only a 10 % "chance for precipitation". *This is indicative of the potential for virga or dry thunderstorms.*

Red Flag Program

Red Flag criteria in the Southwest Area were redefined and standardized on March 1, 2000. Red Flag Criteria in New Mexico are therefore consistent with those described in the "General" section of this plan. The intent of the Red Flag program is to most clearly emphasize those weather events that are conducive to causing extreme fire behavior and fire control problems. A "Red Flag Day" is defined as one with sustained 20 foot, 10 minute time averaged (RAWS) wind speeds of 20 mph or greater, relative humidity of 15 % or less and NFDRS adjective fire danger rating of "High" or higher. This represents a minor change from last year, when the criteria was not based exclusively on winds measured by RAWS stations. New this year in New Mexico, the appropriate zone dispatch centers will be notified by phone when a Red Flag Warning is issued between regularly scheduled forecasts.

Haines Index

Haines Index values given in New Mexico fire weather forecasts are maximum and minimum forecast values for daytime and nighttime respectively. See the section on Haines Index earlier in the plan for more information.

Ventilation and Smoke Dispersion

Elevations for the upper air stations (Albuquerque, El Paso, Amarillo, Midland) will be included along with the mixing heights in the ventilation data for the off-season forecasts. This will be done so that MSL mixing depths can be figured for fire/burn locations not in the vicinity of the upper air stations. *(As an example, consider a mixing height of 4700 ft. AGL based on the Albuquerque upper air sounding. Since Albuquerque is at around 5300 ft., this would translate to an MSL mixing height of 10000 ft. Knowing this, a burn boss on a prescribed burn at 8000 ft MSL in the Jemez mountains would know that relative mixing depths there were only about 2000 ft. AGL).* See the section on Ventilation earlier in the plan for more information.

Spot Forecasts

New this year, offices which serve New Mexico will begin operational use of Internet spot forecasts. Newly developed software allows spot forecast requests to be sent to the NWS via an Internet web site, and for the resulting spot forecasts to be obtained from the same site. The intent is to make the Internet the primary method of requesting and receiving spot forecasts over the next few seasons. Additional information and training will be provided to the fire management agencies by their servicing NWS offices. The web address is: **http://www.wrh.noaa.gov/cgi~bin/wrspot/spotmon?site=abq**

An important change to note this year is that site specific ventilation/dispersion data will no longer be provided in spot forecasts produced by NWS Albuquerque. If requested, the forecast data for Albuquerque will be inserted in the spot forecast to provide guidance. Fire management officials can use guidelines similar to those under the New Mexico “Ventilation and Smoke Dispersion” section to attempt to approximate site-specific ventilation.

It is also important to note that ventilation and dispersion data is not directly related to dispersion categories in the SASEM model used by the fire management agencies. Ventilation data provided by the NWS should not be used to replace the proper use of SASEM.

Spot forecasts are available **at any time** for wildfires and federally managed prescribed burns. Spots for New Mexico are provided by NWS offices in Albuquerque, Santa Teresa (El Paso, TX) and Midland, TX. *Fax/phone numbers, contact points and the Internet addresses for these NWS offices are provided in the reference guide at the end of the ops plan.*

Incident Reponse

With newly certified Incident Meteorologists in El Paso and Midland, on-site meteorological support is now provided by all three offices which serve New Mexico. *See the IMET/ATMU ordering procedures earlier in the plan, or the summary of services at the end, for additional information.*

Additional Information - NWR (NOAA Weather Radio)

The NWS continuously broadcasts the latest weather information for New Mexico on one of seven VHF-FM radio frequencies ranging from 162.400 to 162.550 MHz. Transmissions from individual NOAA Weather Radio (NWR) stations usually cover an area ranging from 40 to 60 miles; however, since VHF radio propagation requires a direct line-of-sight, there will be some reduction of reception in local shadow areas. Hand held programmable King radios issued by the fire management agencies have the capability of receiving these broadcasts. Ordinary AM/FM radios do not receive NWR broadcasts. Most NWR broadcasts which serve New Mexico originate at NWS Albuquerque. NWS offices at El Paso and Midland, TX serve portions of south-central and southeast New Mexico respectively. (A map of broadcast coverage's and their frequencies are displayed in Figure 5, page ##). **NWR broadcast information is not tailored for fire weather use. There are no fire weather forecasts or Red Flag Warnings broadcast. The information you receive over NWR should be used to supplement the fire weather forecast prepared for your area**.

1. NORTHERN AND CENTRAL NEW MEXICO

General Information

This section provides information specific to services provided by NWS Albuquerque. Unless otherwise mentioned, it is to be assumed that services provided by NWS Albuquerque follow the guidelines for those provided to the remainder of New Mexico and the Southwest Area respectively.

Routine Fire Weather Forecasts

NWS Albuquerque issues routine fire weather narrative forecasts (FWF's) for northern and central New Mexico. This includes FWF zones 1 - 8, which correspond to the areas encompassed by Taos, Santa Fe and Albuquerque dispatch zones. *In situations where surface (20 foot) winds are not exclusively forecast in the FWF, it can be assumed that free-air winds are generally light and the 20 foot winds are being controlled by the local convective wind systems. This implies upslope/upvalley winds in the daytime and downslope/downvalley winds at night, with speeds of generally 10 mph or less.*

Spot Forecasts

NWS Albuquerque will begin operational testing of the Internet spot forecast program this season. The web address is: **http://www.wrh.noaa.gov/cgi-bin/wrspot/spotmon?site=abq**

Albuquerque is responsible for spot forecasts for agencies within Taos, Santa Fe and Albuquerque dispatch zones. Spot forecast requests are honored at any time. Turn around time is usually between 30 and 45 minutes, but can but can be up to 60 minutes or more during busy periods. *Please call if a spot forecast is not received within an hour of the time it was requested.*

Feedback on spot forecasts is improving, but still occurs with a minority of spot forecasts issued. It cannot be stressed enough that feedback and validation of spot forecasts are the backbone of the forecast process which allows NWS forecasters to improve upon forecast accuracy. With regard to spot forecasts for prescribed burns, NWS Albuquerque will give precedence to requests that contain additional weather information and/or feedback on previous forecasts. **Spot forecast requests with limited, poor or missing data and no feedback on previous forecasts will receive the lowest priority, and will have no guarantee on the turn around time during busy periods.** Request for forecasts for wildfires will always be handled with expedience.

NFDRS Forecasts

NWS Albuquerque issues NFDRS trend forecasts for the following NFDRS zones in central and northern New Mexico: 318, 326, 322, 340, 314, 368, 330.

Training Assistance

The IMET at NWS Albuquerque has primary responsibility for providing training assistance for fire weather related courses held in New Mexico. Requests for assistance should be made as far in advance of the course dates as possible. **Agencies requesting assistance are reminded that they must pay for all costs incurred, including travel and overtime.** All attempts will be made to keep costs to a minimum, but sufficient advance notice is required.

Incident Meteorologist

The IMET at NWS Albuquerque has primary responsibility for incident response in central and northern portions of the state, essentially Taos, Santa Fe and Albuquerque zones. *See the IMET/ATMU ordering procedures earlier in the plan for additional information.*

2. SOUTH-CENTRAL AND SOUTHWEST NEW MEXICO

General Information

This section provides information specific to services provided by NWS El Paso (Santa Teresa). Unless otherwise mentioned, it is to be assumed that services provided by NWS El Paso follow the guidelines for those provided to the remainder of New Mexico and the Southwest Area respectively.

Routine Fire Weather Forecasts

NWS El Paso will assume responsibility for FWF zones 9, 10 and 11. The forecast will be sent separately to AWIPS/AFOS and WIMS. Zones 9, 10 and 11 correspond to Gila dispatch zone and all of the Lincoln zone west of, and including, the Capitan and Sacramento mountains.

NOTE: ***In situations where surface (20 foot) winds are <u>not</u> exclusively forecast in the FWF, it can be assumed that free-air winds are generally light and the 20 foot winds are being controlled by the local convective wind systems. This implies upslope/upvalley winds in the daytime and downslope/downvalley winds at night, with speeds of generally 10 mph or less.***

<u>Spot Forecasts</u>

NWS El Paso currently has spot forecast responsibility for all of Gila zone and New Mexico portion of the Lincoln zone and west of the Caps/Sacs (basically the area NOT covered by Pecos Valley Dispatch in Roswell). Spot forecast requests are honored at any time. Turn around time is usually around 30 minutes, but can but can be up to 60 minutes or more during busy periods. ***Please call if a spot forecast is not received within an hour of the time it was requested.***

Feedback on spot forecasts is improving, but still occurs with only a small minority of the spot forecasts issued. Forecast accuracy is highly dependant on current weather data input and reports of earlier observed conditions verses previous forecast. Forecasters are much more accurate when they can base their forecast on trends established from reliable observations benchmarks, both current and past. ***The feedback cycle is a win-win proposition as the forecaster gets more and better input into his decisions, and the fire community gets more detailed, accurate forecasts in return.***

To encourage feedback on spot forecast for prescribed burns, priority is given to spot forecast requests which include additional information and feedback on previous forecasts. Spot forecast requests with limited, poor or missing data and no feedback on previous forecasts <u>will receive the lowest priority, and will have no guarantee on the turn around time during busy periods.</u> Of course, request for spot forecasts on wildfires will <u>always</u> be handled with the highest priority and expedience.

<u>NFDRS Forecasts</u>

NWS El Paso has responsibility for preparing Trend and Point Forecast for NFDRS zones 380, 370 and 364 in southwest and south-central New Mexico.

<u>Training Assistance</u>

Training assistance is available for fire weather related courses held in south-central and southwest New Mexico. Requests should be made as far in advance of the course dates as possible. The MIC or Fire Weather Program Leader at El Paso should be contacted for more information. Agencies requesting assistance are reminded that they must pay for all costs incurred, including travel and overtime. All attempts will be made to keep costs to a minimum, but sufficient advance notice is required.

<u>Incident Meteorologist</u>

The IMET at NWS Albuquerque is the only one in New Mexico and has primary responsibility for all incident response in the state. ***See the IMET/ATMU ordering procedures earlier in the plan for additional information.***

3. SOUTHEAST NEW MEXICO

General Information

The Weather Forecast Office (WFO) in Midland, Texas is responsible for Fire Weather Forecaster services for Southeast New Mexico. Included in these services are the issuance, on an as need basis of spot forecasts and/or briefings originating from the Lincoln Dispatch or from the Pecos Valley Dispatch and in season NFDRS forecasts for fire zone 350, zone 364 in the Guadalupe Mountains. Midland also issues a routine narrative fire weather forecast (FWF) for Fire Weather Zone 12 in Southeast New Mexico.

The primary contracts for information concerning the Fire Weather Program at Midland are, the Meteorologist in Charge, Raymond Fagen, the Warning Coordination Meteorologist, George Mathews, and the Fire Weather Focal Point, Greg Murdoch. The primary contacts can be reached at 915-563-5006 (listed) or 1-800-597-3220 (unlisted) amd/or at the following address.

NWSO Midland
2500 Challenger Drive
Midland, TX 79703

Fire Weather Season

In general, the fire weather season is considered to be "open" from Apr 1 through Nov 1. The "open season" is dependent on conditions and can vary. The fire weather season is generally to be coordinated with the user agencies. Products issued from the WFO in Midland will vary slightly in format and in the number of issuances depending on weather the fire season is "opened" or "closed".

Red Flag Warning Program

The established criteria for Red Flag Warnings are based on a combination of weather and fire danger rating. Red Flag Warnings will be issued when 20 ft sustained winds of 20 mph or greater (10 minute average), relative humidity of 15% or less are expected or is occurring, and the Fire Danger Rating is "High" or higher. Forecasters are highly encouraged to coordinate Red Flag Warnings with adjacent weather offices and with land management agencies. Sometimes prior coordination may not be possible, and in these situations, it is suggested that the forecaster contact the land management agency afterwards. Red Flag Warnings will be continued on all subsequent forecast until they expire as noted in the forecast or until they are canceled. Until further notice, Red Flag Warnings will be issued only as headlines in the Routine Fire Weather Forecast and/or in a spot forecast. Since the FWF is a general forecast for the area, there may be times when a Red Flag Warning may not be highlighted in the FWF, but will be in a spot forecast.

Fire Weather Watch Program

Issued to alert agencies to the possibility of red flag criteria beyond the first forecast period (12 hrs) and are issued when there is a reasonable confidence that a red flag event may occur. Typically issued 12-48 hrs in advance, but may be as far out as 72 hrs. The Fire Weather

Watch will be headlined in the routine fire weather forecast and will remain in effect through the expiration time noted in the forecast or is upgraded to a warning or is canceled. The Fire Weather Watch may also be headlined in a spot forecast.

Spot Fire Weather Forecasts

The WFO in Midland issues spot fire weather forecasts upon request from federal agencies and /or to other users in support of wildfires. Spot forecasts are issued for requests originating from the Lincoln Dispatch or the Pecos Valley Dispatch for the area generally covered within fire weather zone 12 (southeast New Mexico). This includes lands managed by BLM Roswell, Bitter Lake NWR, NPS Carlsbad Caverns, and the Guadalupe Mountains RD on the Lincoln National Forest.

If the request is a wildfire, please inform the forecaster. Normally, spot forecast will be faxed to the requesting agency within one half hour of receipt. The request form should be faxed to the WFO in Midland at 915-561-5057, or phoned into 915-563-5006 or 1-800-597-3220. If excessive delays occur, please notify the WFO in Midland.

If you have any questions or problems regarding the spot forecast, please do not hesitate to contact the WFO. Additionally, if at any time during the project the forecast does not reasonably match observed conditions, please call for an updated forecast or to discuss the current situation. Feedback on forecast accuracy, positive or otherwise, is strongly encouraged.

<u>NFDRS Forecasts</u>

Midland is responsible for NFDRS zone 350 and the Texas portion of zone 364, which includes the Guadalupe Mountains NP. For the forecaster to issue a forecast, an observation must be received. Individual station trends forecast are issued in zone 364 so there is no conflict with the zone trend forecast for 364 issued by El Paso. Zone trends are provided for zone 350.

Routine Fire Weather Planning/Pre-Suppression Forecasts

WFO Midland issues routine fire weather forecast for FWF Zone 12 (southeast New Mexico). These forecasts are issued twice daily generally no later than 1030 am and 330 pm local during the "fire weather season". In the "off-season", the FWF is issued once a day no later t han 1030 am local. These forecasts include cloud cover, temperature, wind, and chance of rain yearly. Relative humidity, 10,000 ft free air winds, the lightning activity level, and Haines Indices are also included during the "in-season". The "off-season" format varies slightly and is in support of prescribe burns. The "off-season" format includes relative humidity, 10,000 ft free air winds, and verification data only.

TABLE 5

NEW MEXICO FIRE DANGER AND WEATHER REPORTING STATIONS

Station Name	6-digit ID#	NFDRS Zone	FWF Zone	County	Agn	Twn	Rng	Sec	Lat	Long	Elev	RAWS Platform ID#
Washington Pass	290101	340	5	San Juan	BIA	21N	19W	4	36.08	108.86	9365	FTS
Albino Canyon	290102	318	1	San Juan	BLM	32N	8W	13	36.97	107.67	7160	324BF5EA
Stone Lake	290201	326	2	Rio Arriba	BIA	29N	1E	18	36.73	106.86	7440	FTS
Deadman Peak	NONE	326	2	Rio Arriba	FS	25N	2E	7	36.42	106.77	8450	326EB0CE
Coyote	290202	326	2	Rio Arriba	FS	21N	3E	7	36.07	106.64	8800	3232D0F6
Dulce	290207	326	2	Rio Arriba	BIA	31N	2W	1	36.93	107.00	6793	Manual
Penasco	290301	322	3	Taos	FS	22N	12E	5	36.08	105.67	8700	FTS
Taos	290305	322	3	Taos	BIA	25N	13E	9	36.42	105.56	7050	FTS
Capulin Volcano	290501	330	4	Union	NPS	29N	28E	5	36.77	103.97	7242	Manual
Jemez	290702	326	2	Sandoval	FS	18N	2E	24	35.73	106.55	8000	FTS
Cuba	290705	318	2	Sandoval	BLM	20N	2W	19	35.94	107.08	6172	325B84E4
Tower	290801	326	2	Los Alamos	NPS	18N	6E	24	35.83	106.33	6500	FA6362DE
Ft Union	291001	322	3	Mora	NPS	NA	NA	NA	35.87	105.00	6700	Manual
Pecos	291202	322	3	San Miguel	FS	16N	12E	33	35.55	105.48	8600	3246E5FA
Elk Mountain	NONE	322	3	San Miguel	BLM	18N	13E	27	35.77	105.59	11659	3263A0DE
Brushy	291301	314	5	Cibola	BIA	6N	10W	25	34.72	107.84	8762	5210D682
Grants	291302	340	5	Cibola	FS	11N	8W	24	35.23	107.67	8450	FTS
Tijeras	291401	368	7	Bernalillo	FS	10N	5E	28	35.06	106.38	6560	323372F4
Mountainair	291501	368	7	Torrance	FS	3N	6E	1	34.30	106.20	6500	FTS
Beaverhead	292001	380	9	Catron	FS	10S	12W	19	33.30	108.10	6700	FTS
Luna	292004	380	9	Catron	FS	5S	20W	32	33.80	108.90	7050	Manual
Reserve	292005	380	9	Catron	FS	7S	19W	11	33.71	108.78	5832	Manual
Gila Center	292006	380	9	Catron	FS	12S	14W	25	33.22	108.23	5600	3232F61A
Slaughter Mesa	292008	380	9	Catron	FS	3S	15W	7	34.07	108.43	8680	3233D20C
Pelona	292009	314	9	Catron	BLM	7S	12W	22	33.67	108.05	8080	324BE69C
Bearwallow	292010	380	9	Catron	FS	10S	18W	11	33.46	108.67	9953	326C15C2
Chupadera	292102	370	6	Socorro	BLM	6S	8E	16	33.77	106.10	6520	325B376A
Bosque	292103	370	6	Socorro	FWS	6S	1W	12	33.80	106.88	4512	837141D2
Magdalena	NONE	380	9	Socorro	FS	5S	7W	26	33.85	107.54	8500	32336182
Smokey Bear	292203	364	11	Lincoln	FS	9S	14E	9	33.35	105.67	6900	32340650
8 Mile	292301	350	12	Chaves	BLM	8S	26E	5	33.63	104.32	3740	327CA1D2
Dunken	292302	350	12	Chaves	BLM	17S	17E	23	32.82	105.17	5500	325B41FA
Hatchita Valley	292702	370	10	Hidalgo	BLM	30S	15W	14	31.72	108.33	4291	3243D7A0
Uvas	292902	370	10	Dona Ana	BLM	20S	3W	23	32.52	107.12	5000	326335BC
Dripping Springs	292903	370	10	Dona Ana	BLM	22S	4E	8	32.32	106.58	6172	324B900C
San Andres	292904	370	10	Dona Ana	FWS	20S	4E	15	32.57	106.52	6138	83709540
Mayhill	293002	364	11	Otero	FS	16S	14E	24	32.98	105.50	6558	FTS
Mescalero	293003	364	11	Otero	BIA	13S	12E	27	33.17	105.83	6227	5212B690
Cosmic	293004	364	11	Otero	FS	17S	11E	26	32.78	105.80	8700	3233F4E0
Batdraw	293101	350	12	Eddy	NPS	24S	25E	31	32.18	104.43	4300	FA623058
Caprock	293104	350	12	Eddy	BLM	16S	30E	15	32.92	103.85	4210	325B241C
Paduca	293202	350	12	Lea	BLM	24S	32E	31	32.17	103.72	3510	325B6716
Malpais	293301	314	5	Cibola	BLM	8N	12W	22	34.90	108.10	7460	324B837A

Figure 3 - New Mexico NFDRS Zones and Stations

Figure 4 - New Mexico Fire Weather Narrative Zones

EXAMPLE 2 - NEW MEXICO ROUTINE FIRE WEATHER FORECASTS (FWF)

Sample: Morning Issuance of In-Season Fire Weather Narrative

```
FIRE WEATHER FORECAST FOR NORTH AND CENTRAL NEW MEXICO
NATIONAL WEATHER SERVICE ALBUQUERQUE NM
930 AM MDT FRI APR 16 1999

.SYNOPSIS...WARMING TREND THROUGH THE WEEKEND. A COOL NORTHERLY FLOW ALOFT WILL CONTINUE OVER
NEW MEXICO TODAY...BEFORE HIGH PRESSURE OVER THE WESTERN U.S. MOVES EASTWARD BRINGING WARMER
TEMPERATURES AND LESS WIND TO THE STATE THIS WEEKEND. WEAK DISTURBANCES MOVING SOUTHWARD ALONG
THE FRONT RANGE OF THE ROCKIES WILL CONTINUE TO BRING VARIABLY CLOUDY SKIES AND A FEW LIGHT RAIN
OR SNOW SHOWERS TO THE NORTHERN HIGH COUNTRY AND ACROSS MUCH OF THE NORTHEAST PLAINS TODAY AND
EARLY TONIGHT.  THE HIGH PRESSURE RIDGE WILL BEGIN TO NUDGE EASTWARD ON SATURDAY...THEN DOMINATE
THE WEATHER SUNDAY INTO EARLY NEXT WEEK.

WIND SPEEDS ARE APPROXIMATED 20 FT./10 MIN. VALUES BASED ON 33 FT./2 MIN. VALUES USED IN PUBLIC
ZONE FORECASTS. WHERE WINDS ARE OMITTED THEY ARE ASSUMED UPSLOPE/UPVALLEY DURING THE DAY AND
DOWNSLOPE/DOWNVALLEY AT NIGHT WITH SPEEDS GENERALLY 10 MPH OR LESS.

NMZ001-162100-
NEW MEXICO FIRE WEATHER ZONE 1
NORTHWEST PLATEAU/FARMINGTON BLM/ABZ-
930 AM MDT FRI APR 16 1999

.TODAY...MOSTLY SUNNY AND COOL. WEST TO NORTHWEST WINDS 10-15 MPH.
.TONIGHT...CLEAR AND COLD.
.SATURDAY...SUNNY AND WARMER.
.<                            TEMPERATURES        / CHC. WETTING RAIN
 FARMINGTON                   55  28   62         /    0   0   0
REGIONAL DATA...
NORTHWEST PLATEAU
  RELATIVE HUMIDITY......... 10   50   8
  LAL....................... 1    1    1
  HAINES INDEX.............. 2    2    3
  10000FT WINDS............. NW25 NW22 NW15
$$
NMZ002-003-162100-
NEW MEXICO FIRE WEATHER ZONE 2
NORTHWEST MOUNTAINS/WESTERN CARSON-SANTA FE NF/SNZ-TAZ-
930 AM MDT FRI APR 16 1999

.TODAY...MOSTLY SUNNY AND COOL. WEST TO NORTHWEST WINDS 10-15 MPH.
.TONIGHT...CLEAR AND COLD.
.SATURDAY...SUNNY AND WARMER.
.<                            TEMPERATURES        / CHC. WETTING RAIN
 6000FT (ESPANOLA)           52   20   58         /    0   0   0
 7000FT (LOS ALAMOS)         50   22   55         /    0   0   0
 8000FT (CHAMA)              48   14   50         /    0   0   0
REGIONAL DATA...
NORTHWEST MTNS
  RELATIVE HUMIDITY......... 25   65   20
  LAL....................... 1    1    1
  HAINES INDEX.............. 2    2    3
  10000FT WINDS............. NW25 NW22 NW18
$$
```

Sample: Morning Issuance of In-Season Fire Weather Narrative (cont.)

```
NMZ004-162100-
NEW MEXICO FIRE WEATHER ZONE 3
SANGRE DE CRISTO MOUNTAINS/EASTERN CARSON AND SANTA FE NF/SNZ-TAZ-
930 AM MDT FRI APR 16 1999

.TODAY...CONTINUED VERY COOL. VARIABLE CLOUDINESS WITH WIDELY SCATTERED SNOW SHOWERS. LIGHT
ACCUMULATIONS IN THE HIGHER TERRAIN. WINDS NORTHERLY 10-15 MPH.
.TONIGHT...PARTLY CLOUDY AND COLD WITH A FEW POSSIBLE FLURRIES. BECOMING MOSTLY CLOUDY ACROSS
EAST SLOPES OVERNIGHT. NORTH TO NORTHEAST WIND 10 MPH.
.SATURDAY...MOSTLY CLOUDY EAST SLOPES EARLY WITH A FEW SNOW SHOWERS NEAR COLORADO BORDER THEN
PARTLY CLOUDY AND NOT AS COOL IN THE AFTERNOON. NORTHWEST TO WEST 10-15 MPH.
.<                            TEMPERATURES        / CHC. WETTING RAIN
 7000FT EAST (LAS VEGAS)      42  20   50         /   10   0   0
 7000FT WEST (SANTA FE)       52  25   58         /    0   0   0
 8500FT (RED RIVER)           40  12   45         /   20  10  10
REGIONAL DATA...
SANGRE DE CRISTO MTNS
  RELATIVE HUMIDITY..... 30   75   28
  LAL.................... 1    1    1
  HAINES INDEX.............. 2    2    2
  10000FT WINDS............. N25  NW25 NW22
$$

NMZ007-162100-
NEW MEXICO FIRE WEATHER ZONE 4
NORTHEAST PLAINS/EASTERN KIOWA AND RITA BLANCA GRASSLANDS/ABZ-TNZ-
930 AM MDT FRI APR 16 1999

.TODAY...VARIABLE CLOUDINESS AND COOL WITH A FEW SNOW FLURRIES POSSIBLE. NORTHWEST WINDS 10-15
MPH.
.TONIGHT...VARIABLY CLOUDY AND COLD. NORTHWEST WINDS 10 MPH.
.SATURDAY...PARTLY CLOUDY AND NOT AS COOL. NORTHWEST WINDS 10 MPH.
.<                            TEMPERATURES        / CHC. WETTING RAIN
 CLAYTON                      45  25   52         /   10   0   0
REGIONAL DATA...
NORTHEAST PLAINS
  RELATIVE HUMIDITY..... 32   80   28
  LAL.................... 1    1    1
  HAINES INDEX.............. 2    2    2
  10000FT WINDS............. N25  NW25 NW22
$$

NMZ008-162100-
NEW MEXICO FIRE WEATHER ZONE 5
WEST CENTRAL MOUNTAINS/WESTERN CIBOLA NF/ABZ-
930 AM MDT FRI APR 16 1999

.TODAY...MOSTLY SUNNY AND COOL. WEST TO NORTHWEST WINDS 10-15 MPH.
.TONIGHT...CLEAR AND COLD.
.SATURDAY...SUNNY AND WARMER.
.<                            TEMPERATURES        / CHC. WETTING RAIN
 6500FT (GRANTS)              58  20   62         /    0   0   0
REGIONAL DATA...
```

WEST CENTRAL MTNS
  RELATIVE HUMIDITY..... 18   55   12
  LAL..................... 1   1   1
  HAINES INDEX............ 2   2   3
  10000FT WINDS........... NW22 NW20 NW18
$$

NMZ009-015-162100-
NEW MEXICO FIRE WEATHER ZONE 6
MIDDLE RIO GRANDE VALLEY/ALBUQUERQUE-SOCORRO BLM/ABZ-GLZ-
930 AM MDT FRI APR 16 1999

.TODAY...MOSTLY SUNNY AND COOL. EASTERLY WINDS 10-15 MPH THIS MORNING BECOMING NORTHWEST 10-15 MPH THIS AFTERNOON.
.TONIGHT...CLEAR AND CONTINUED CHILLY. EAST CANYON WINDS 15-20 MPH DEVELOPING AROUND MIDNIGHT.
.SATURDAY...MOSTLY SUNNY AND WARMER. WINDS BECOMING SOUTHWEST 10-15 MPH.
.<   TEMPERATURES   / CHC. WETTING RAIN
 ALBUQUERQUE VALLEY   60 25   65   /   0   0   0
 SOCORRO   64 28   68   /   0   0   0
REGIONAL DATA...
MIDDLE RIO GRANDE VLY
  RELATIVE HUMIDITY..... 12   55   10
  LAL..................... 1   1   1
  HAINES INDEX............ 2   2   3
  10000FT WINDS........... NW25 NW22 NW18

$$

NMZ010-162100-
NEW MEXICO FIRE WEATHER ZONE 7
SANDIA-MANZANO AND GALLINAS MOUNTAINS/EASTERN CIBOLA NF/ABZ-
930 AM MDT FRI APR 16 1999

.TODAY...SCATTERED CLOUDS AND COOL. NORTH TO NORTHWEST WINDS 15-25 MPH AND GUSTY.
.TONIGHT...MOSTLY CLEAR AND CHILLY. NORTHWEST WIND 10-20 MPH...LOCALLY HIGHER GUSTS ALONG THE EAST SLOPES.
.SATURDAY...SUNNY AND WARMER. NORTHWEST WINDS 10-20 MPH AND GUSTY.
.<   TEMPERATURES   / CHC. WETTING RAIN
 7000FT (SANDIA PARK)   45 22   52   /   0   0   0
REGIONAL DATA...
SANDIA/MANZANO MTNS
  RELATIVE HUMIDITY..... 28   80   22
  LAL..................... 1   1   1
  HAINES INDEX............ 2   2   3
  10000FT WINDS........... NW25 NW22 NW20

$$

Sample: Morning Issuance of In-Season Fire Weather Narrative (cont.)

```
NMZ005-006-011>013-018-020-021-162100-
NEW MEXICO FIRE WEATHER ZONE 8
EAST CENTRAL PLAINS/WESTERN KIOWA GRASSLANDS BLM/ABZ-SNZ-
930 AM MDT FRI APR 16 1999

.TODAY...MOSTLY CLOUDY THIS MORNING WITH A FEW FLURRIES POSSIBLE. BECOMING PARTLY CLOUDY AND
CONTINUED COOL THIS AFTERNOON. NORTHWEST TO NORTHEAST WINDS 10-15 MPH.
.TONIGHT...VARIABLY CLOUDY AND COLD. NORTHWEST WINDS 10 MPH.
.SATURDAY...PARTLY CLOUDY AND NOT AS COOL. WINDS BECOMING SOUTH TO SOUTHWEST WINDS 10-15 MPH.
.<                            TEMPERATURES        / CHC. WETTING RAIN
 CLOVIS                       55  30   60         /   10   0   0
 MORIARTY/ESTANCIA            48  16   55         /    0   0   0
 ROY                          48  20   52         /   10   0   0
 SANTA ROSA                   55  28   60         /   10   0   0
REGIONAL DATA...
EAST AND CENTRAL PLAINS
  RELATIVE HUMIDITY..... 30   80   25
  LAL.................... 1    1    1
  HAINES INDEX.............. 2    2    3
  10000FT WINDS............. N25  NW25 NW22

$$

.EXTENDED FORECAST...
.SUNDAY...FAIR SKIES AND WARMER. HIGHS UPPER 50S TO MID 70S MOUNTAINS AND NORTH WITH 70S TO MID
80S SOUTH.
.MONDAY...FAIR SKIES AND WARM. LOWS MID 20S TO NEAR 40 MOUNTAINS AND NORTH...UPPER 30S TO NEAR
50 ELSEWHERE. HIGHS 60S TO MID 70S MOUNTAINS AND NORTH...UPPER 70S TO NEAR 90 SOUTH.
.TUESDAY. FAIR SKIES AND BREEZY WARM IN THE NORTH AND HOT IN THE SOUTH. LOWS NEAR 30 TO MID 40S
MOUNTAINS AND NORTH...40 TO MID 50S SOUTH.  HIGHS 60S AND 70S MOUNTAINS AND NORTH...80 TO LOWER
90S LOWER ELEVATIONS SOUTH.

FCSTR K.JONES

NNNN
```

Sample: Off-Season Fire Weather Narrative

```
FIRE WEATHER FORECAST FOR NORTH AND CENTRAL NEW MEXICO
NATIONAL WEATHER SERVICE  ALBUQUERQUE NM
915 AM MST FRI MAR 21 1997

SYNOPSIS...UPPER LEVEL RIDGE OF HIGH PRESSURE OVER STATE HAS FLATTENED SOMEWHAT WHICH WILL ALLOW
A COLD FRONT TO MOVE SOUTHWARD OUT OF COLORADO...INTO NORTHEAST CORNER OF NEW MEXICO THIS
MORNING AND ON DOWN THE PLAINS TONIGHT. SOME OF THE COOLER AIR OVER THE EAST PORTION OF THE
STATE WILL POUR THROUGH THE MOUNTAIN PASSES INTO THE RIO GRANDE VALLEY TONIGHT WITH GUSTY EAST
CANYON WINDS FORECAST. THE SURFACE HIGH BEHIND THE COLD FRONT WILL ALREADY BE RECEDING EASTWARD
BY SATURDAY AFTERNOON. AN UPPER LOW IS FORECAST TO DEVELOP OVER SOUTHERN CALIFORNIA OVER THE
NEXT COUPLE OF DAYS...BUT REMAIN NEARLY STATIONARY WITH THE UPPER RIDGE REDEVELOPING OVER NEW
MEXICO.  EVENTUALLY THIS UPPER LOW WILL BRING NEW MEXICO COOLER WEATHER WITH A CHANCE FOR
SHOWERS BUT NOT FOR THE NEXT FEW DAYS AT LEAST.

WIND SPEEDS ARE APPROXIMATED 20 FT./10 MIN. VALUES BASED ON 33 FT./2 MIN. VALUES USED IN PUBLIC
ZONE FORECASTS. WHERE WINDS ARE OMITTED THEY ARE ASSUMED UPSLOPE/UPVALLEY DURING THE DAY AND
DOWNSLOPE/DOWNVALLEY AT NIGHT WITH SPEEDS GENERALLY 10 MPH OR LESS.

NMZ001-221530-
NEW MEXICO FIRE WEATHER ZONE 1
NORTHWEST PLATEAU/FARMINGTON BLM/ABZ-
915 AM MST FRI MAR 21 1997

.TODAY...MOSTLY SUNNY AND COOL. WEST TO NORTHWEST WINDS 10-15 MPH.
.TONIGHT...CLEAR AND COLD.
.SATURDAY...SUNNY AND WARMER.
.<                          TEMPERATURES        / CHC. WETTING RAIN
 FARMINGTON                 55  28   62        /    0   0   0
REGIONAL DATA...
NORTHWEST PLATEAU
  RELATIVE HUMIDITY..... 10   50   8
  10000FT WINDS.......... NW25 NW22 NW15
$$

NMZ002-003-221530-
NEW MEXICO FIRE WEATHER ZONE 2
NORTHWEST MOUNTAINS/WESTERN CARSON-SANTA FE NF/SNZ-TAZ-
915 AM MST FRI MAR 21 1997

.TODAY...MOSTLY SUNNY AND COOL. WEST TO NORTHWEST WINDS 10-15 MPH.
.TONIGHT...CLEAR AND COLD.
.SATURDAY...SUNNY AND WARMER.
.<                          TEMPERATURES        / CHC. WETTING RAIN
 6000FT (ESPANOLA)          52  20  58          /    0   0   0
 7000FT (LOS ALAMOS)        50  22  55          /    0   0   0
 8000FT (CHAMA)             48  14  50          /    0   0   0
REGIONAL DATA...
NORTHWEST MTNS
  RELATIVE HUMIDITY..... 25   65   20
  10000FT WINDS.......... NW25 NW22 NW18
```

Sample: Off-Season Fire Weather Narrative (cont.)

```
NMZ004-221530-
NEW MEXICO FIRE WEATHER ZONE 3
SANGRE DE CRISTO MOUNTAINS/EASTERN CARSON AND SANTA FE NF/SNZ-TAZ-
915 AM MST FRI MAR 21 1997

.TODAY...CONTINUED VERY COOL. VARIABLE CLOUDINESS WITH WIDELY SCATTERED SNOW SHOWERS. LIGHT
ACCUMULATIONS IN THE HIGHER TERRAIN. WINDS NORTHERLY 10-15 MPH.
.TONIGHT...PARTLY CLOUDY AND COLD WITH A FEW POSSIBLE FLURRIES. BECOMING MOSTLY CLOUDY ACROSS
EAST SLOPES OVERNIGHT. NORTH TO NORTHEAST WIND 10 MPH.
.SATURDAY...MOSTLY CLOUDY EAST SLOPES EARLY WITH A FEW SNOW SHOWERS NEAR COLORADO BORDER THEN
PARTLY CLOUDY AND NOT AS COOL IN THE AFTERNOON. NORTHWEST TO WEST 10-15 MPH.
.<                            TEMPERATURES        / CHC. WETTING RAIN
 7000FT EAST (LAS VEGAS)      42  20   50         /   10   0   0
 7000FT WEST (SANTA FE)       52  25   58         /    0   0   0
 8500FT (RED RIVER)           40  12   45         /   20  10  10
REGIONAL DATA...
SANGRE DE CRISTO MTNS
  RELATIVE HUMIDITY..... 30   75   28
  10000FT WINDS..... N25  NW25 NW22

$$

NMZ007-221530-
NEW MEXICO FIRE WEATHER ZONE 4
NORTHEAST PLAINS/EASTERN KIOWA AND RITA BLANCA GRASSLANDS/ABZ-TNZ-
915 AM MST FRI MAR 21 1997

.TODAY...VARIABLE CLOUDINESS AND COOL WITH A FEW SNOW FLURRIES POSSIBLE. NORTHWEST WINDS 10-15
MPH.
.TONIGHT...VARIABLY CLOUDY AND COLD. NORTHWEST WINDS 10 MPH.
.SATURDAY...PARTLY CLOUDY AND NOT AS COOL. NORTHWEST WINDS 10 MPH.
.<                            TEMPERATURES        / CHC. WETTING RAIN
 CLAYTON                      45  25   52         /   10   0   0
REGIONAL DATA...
NORTHEAST PLAINS
  RELATIVE HUMIDITY..... 32   80   28
  10000FT WINDS..... N25  NW25 NW22

$$

NMZ008-221530-
NEW MEXICO FIRE WEATHER ZONE 5
WEST CENTRAL MOUNTAINS/WESTERN CIBOLA NF/ABZ-
915 AM MST FRI MAR 21 1997

.TODAY...MOSTLY SUNNY AND COOL. WEST TO NORTHWEST WINDS 10-15 MPH.
.TONIGHT...CLEAR AND COLD.
.SATURDAY...SUNNY AND WARMER.
.<                            TEMPERATURES        / CHC. WETTING RAIN
```

```
 6500FT (GRANTS)              58   20   62        /    0   0   0
REGIONAL DATA...
WEST CENTRAL MTNS
  RELATIVE HUMIDITY..... 18   55   12
  10000FT WINDS..... NW22 NW20 NW18
$$

NMZ009-015-221530-
NEW MEXICO FIRE WEATHER ZONE 6
MIDDLE RIO GRANDE VALLEY/ALBUQUERQUE-SOCORRO BLM/ABZ-GLZ-
915 AM MST FRI MAR 21 1997

.TODAY...MOSTLY SUNNY AND COOL. EASTERLY WINDS 10-15 MPH THIS MORNING BECOMING NORTHWEST 10-15
MPH THIS AFTERNOON.
.TONIGHT...CLEAR AND CONTINUED CHILLY. EAST CANYON WINDS 15-20 MPH DEVELOPING AROUND MIDNIGHT.
.SATURDAY...MOSTLY SUNNY AND WARMER. WINDS BECOMING SOUTHWEST 10-15 MPH.
.<                            TEMPERATURES        / CHC. WETTING RAIN
 ALBUQUERQUE VALLEY           60  25   65         /    0   0   0
 SOCORRO                     M60S U20S U60S       /    0   0   0
REGIONAL DATA...
MIDDLE RIO GRANDE VLY
  RELATIVE HUMIDITY..... 12   55   10
  10000FT WINDS..... NW25 NW22 NW18

$$

NMZ010-221530-
NEW MEXICO FIRE WEATHER ZONE 7
SANDIA-MANZANO AND GALLINAS MOUNTAINS/EASTERN CIBOLA NF/ABZ-
915 AM MST FRI MAR 21 1997

.TODAY...SCATTERED CLOUDS AND COOL. NORTH TO NORTHWEST WINDS 15-25 MPH AND GUSTY.
.TONIGHT...MOSTLY CLEAR AND CHILLY. NORTHWEST WIND 10-20 MPH...LOCALLY HIGHER GUSTS ALONG THE
EAST SLOPES.
.SATURDAY...SUNNY AND WARMER. NORTHWEST WINDS 10-20 MPH AND GUSTY.
.<                            TEMPERATURES        / CHC. WETTING RAIN
 7000FT (SANDIA PARK)         45  22   52         /    0   0   0
REGIONAL DATA...
SANDIA/MANZANO MTNS
  RELATIVE HUMIDITY..... 28   80   22
  10000FT WINDS..... NW25 NW22 NW20
$$

NMZ005-006-011>013-018-020-021-221530-
NEW MEXICO FIRE WEATHER ZONE 8
EAST CENTRAL PLAINS/WESTERN KIOWA GRASSLANDS BLM/ABZ-SNZ-
915 AM MST FRI MAR 21 1997

.TODAY...MOSTLY CLOUDY THIS MORNING WITH A FEW FLURRIES POSSIBLE. BECOMING PARTLY CLOUDY AND
CONTINUED COOL THIS AFTERNOON. NORTHWEST TO NORTHEAST WINDS 10-15 MPH.
.TONIGHT...VARIABLY CLOUDY AND COLD. NORTHWEST WINDS 10 MPH.
```

.SATURDAY...PARTLY CLOUDY AND NOT AS COOL. WINDS BECOMING SOUTH TO SOUTHWEST WINDS 10-15 MPH.

.<	TEMPERATURES			/ CHC. WETTING RAIN			
CLOVIS	55	30	60	/	10	0	0
MORIARTY/ESTANCIA	48	16	55	/	0	0	0
ROY	48	20	52	/	10	0	0
SANTA ROSA	55	28	60	/	10	0	0

REGIONAL DATA...

EAST AND CENTRAL PLAINS

RELATIVE HUMIDITY.....	30	80	25
10000FT WINDS.....	N25	NW25	NW22

$$

VENTILATION DATA...

	STN ELEV (FT MSL)	MIX HGT (FT AGL)	TRANSPORT WINDS (KTS)		CATEGORY TDY	OTLK TMRW
ALBUQUERQUE	5310	9000	NW	10	GOOD	GOOD
AMARILLO	3680	10000	S	14	VRY GD	VRY GD

$$

.EXTENDED FORECAST...

.SUNDAY...FAIR SKIES AND WARMER. HIGHS UPPER 50S TO MID 70S MOUNTAINS AND NORTH WITH 70S TO MID 80S SOUTH.

.MONDAY...FAIR SKIES AND WARM. LOWS MID 20S TO NEAR 40 MOUNTAINS AND NORTH...UPPER 30S TO NEAR 50 ELSEWHERE. HIGHS 60S TO MID 70S MOUNTAINS AND NORTH...UPPER 70S TO NEAR 90 SOUTH.

.TUESDAY. FAIR SKIES AND BREEZY WARM IN THE NORTH AND HOT IN THE SOUTH. LOWS NEAR 30 TO MID 40S MOUNTAINS AND NORTH...40 TO MID 50S SOUTH. HIGHS 60S AND 70S MOUNTAINS AND NORTH...80 TO LOWER 90S LOWER ELEVATIONS SOUTH.

FCSTR K.JONES

NNNN

Sample: Afternoon Issuance of In-Season Fire Weather Narrative

```
FIRE WEATHER FORECAST FOR NORTH AND CENTRAL NEW MEXICO
NATIONAL WEATHER SERVICE ALBUQUERQUE NM
230 PM MDT FRI APR 16 1999

.SYNOPSIS...SLOW WARMING TREND OVER THE WEEKEND WITH HIGHS ABOVE SEASONAL BY SUNDAY AND MONDAY.
THE UNSEASONABLY COOL AIR MASS THAT HAS DOMINATED NEW MEXICO THE PAST COUPLE OF DAYS WILL MODIFY
OVER THE WEEKEND AS AN UPPER LEVEL RIDGE OVER THE WESTERN STATES BUILDS EASTWARD OVER THE STATE.
IN THE MEANTIME... ONE LAST DISTURBANCE WILL DIVE SOUTHWARD THROUGH EASTERN NEW MEXICO TONIGHT
INTO EARLY SATURDAY BRINGING MORE CLOUDS AND WIDELY SCATTERED SNOW SHOWERS TO THE MOUNTAINS AND
EAST. LOW CLOUDS WILL REVISIT THE EASTERN PLAINS AGAIN OVERNIGHT BUT WILL BURN OFF BY MIDDAY
ONCE THE WEATHER DISTURBANCE MOVES AWAY TOMORROW AFTERNOON. NO SIGNIFICANT WIND IS FORECAST THIS
WEEKEND WITH THE USUAL LATE DAY BREEZES. THE UPPER LEVEL RIDGE WILL BE THE DOMINANT FEATURE INTO
EARLY NEXT WEEK.

WIND SPEEDS ARE APPROXIMATED 20 FT./10 MIN. VALUES BASED ON 33 FT./2 MIN. VALUES USED IN PUBLIC
ZONE FORECASTS. WHERE WINDS ARE OMITTED THEY ARE ASSUMED UPSLOPE/UPVALLEY DURING THE DAY AND
DOWNSLOPE/DOWNVALLEY AT NIGHT WITH SPEEDS GENERALLY 10 MPH OR LESS.

NMZ001-162100-
NEW MEXICO FIRE WEATHER ZONE 1
NORTHWEST PLATEAU/FARMINGTON BLM/ABZ-
230 PM MDT FRI APR 16 1999

.TONIGHT...CLEAR AND COLD.
.SATURDAY...SUNNY AND WARMER.
.<                            TEMPERATURES   / CHC. WETTING RAIN
 FARMINGTON                   28  62         /    0   0
REGIONAL DATA...
NORTHWEST PLATEAU
  RELATIVE HUMIDITY......... 50   8
  LAL....................... 1    1
  HAINES INDEX.............. 2    3
  10000FT WINDS............. NW22 NW15

$$

NMZ002-003-162100-
NEW MEXICO FIRE WEATHER ZONE 2
NORTHWEST MOUNTAINS/WESTERN CARSON-SANTA FE NF/SNZ-TAZ-
230 PM MDT FRI APR 16 1999

.TONIGHT...CLEAR AND COLD.
.SATURDAY...SUNNY AND WARMER.
.<                            TEMPERATURES   / CHC. WETTING RAIN
 6000FT (ESPANOLA)            20  58         /    0   0
 7000FT (LOS ALAMOS)          22  55         /    0   0
 8000FT (CHAMA)               14  50         /    0   0
REGIONAL DATA...
NORTHWEST MTNS
```

```
  RELATIVE HUMIDITY..... 65   20
  LAL................... 1    1
  HAINES INDEX.............. 2    3
  10000FT WINDS............. NW22 NW18

$$

NMZ004-162100-
NEW MEXICO FIRE WEATHER ZONE 3
SANGRE DE CRISTO MOUNTAINS/EASTERN CARSON AND SANTA FE NF/SNZ-TAZ-
230 PM MDT FRI APR 16 1999

.TONIGHT...PARTLY CLOUDY AND COLD WITH A FEW POSSIBLE FLURRIES. BECOMING MOSTLY CLOUDY ACROSS
EAST SLOPES OVERNIGHT. NORTH TO NORTHEAST WIND 10 MPH.
.SATURDAY...MOSTLY CLOUDY EAST SLOPES EARLY WITH A FEW SNOW SHOWERS NEAR COLORADO BORDER THEN
PARTLY CLOUDY AND NOT AS COOL IN THE AFTERNOON. WINDS NORTHWEST TO WEST 10-15 MPH.
.<                          TEMPERATURES   / CHC. WETTING RAIN
 7000FT EAST (LAS VEGAS)      20  50         /    0   0
 7000FT WEST (SANTA FE)       25  58         /    0   0
 8500FT (RED RIVER)           12  45         /    10  10
REGIONAL DATA...
SANGRE DE CRISTO MTNS
  RELATIVE HUMIDITY..... 75   28
  LAL................... 1    1
  HAINES INDEX.............. 2    2
  10000FT WINDS............. NW25 NW22
$$

NMZ007-162100-
NEW MEXICO FIRE WEATHER ZONE 4
NORTHEAST PLAINS/EASTERN KIOWA AND RITA BLANCA GRASSLANDS/ABZ-TNZ-
230 PM MDT FRI APR 16 1999

.TONIGHT...VARIABLY CLOUDY AND COLD. NORTHWEST WINDS 10 MPH.
.SATURDAY...PARTLY CLOUDY AND NOT AS COOL. NORTHWEST WINDS 10 MPH.
.<                          TEMPERATURES   / CHC. WETTING RAIN
 CLAYTON                      25  52         /    0   0
REGIONAL DATA...
NORTHEAST PLAINS
  RELATIVE HUMIDITY..... 80   28
  LAL................... 1    1
  HAINES INDEX.............. 2    2
  10000FT WINDS............. NW25 NW22
$$

NMZ008-162100-
NEW MEXICO FIRE WEATHER ZONE 5
WEST CENTRAL MOUNTAINS/WESTERN CIBOLA NF/ABZ-
230 PM MDT FRI APR 16 1999

.TONIGHT...CLEAR AND COLD.
```

.SATURDAY...SUNNY AND WARMER.
.<   TEMPERATURES   / CHC. WETTING RAIN
 6500FT (GRANTS)   20 62   /   0   0
REGIONAL DATA...
WEST CENTRAL MTNS
  RELATIVE HUMIDITY..... 55   12
  LAL..................... 1   1
  HAINES INDEX.............. 2   3
  10000FT WINDS............. NW20 NW18
$$

NMZ009-015-162100-
NEW MEXICO FIRE WEATHER ZONE 6
MIDDLE RIO GRANDE VALLEY/ALBUQUERQUE-SOCORRO BLM/ABZ-GLZ-
230 PM MDT FRI APR 16 1999

.TONIGHT...CLEAR AND CONTINUED CHILLY. EAST CANYON WINDS 15-20 MPH DEVELOPING AROUND MIDNIGHT.
.SATURDAY...MOSTLY SUNNY AND WARMER. WINDS BECOMING SOUTHWEST 10-15 MPH.
.<   TEMPERATURES   / CHC. WETTING RAIN
 ALBUQUERQUE VALLEY   25   65   /   0   0
 SOCORRO   28   68   /   0   0
REGIONAL DATA...
MIDDLE RIO GRANDE VLY
  RELATIVE HUMIDITY..... 55   10
  LAL..................... 1   1
  HAINES INDEX.............. 2   3
  10000FT WINDS............. NW22 NW18

$$

NMZ010-162100-
NEW MEXICO FIRE WEATHER ZONE 7
SANDIA-MANZANO AND GALLINAS MOUNTAINS/EASTERN CIBOLA NF/ABZ-
230 PM MDT FRI APR 16 1999

.TONIGHT...MOSTLY CLEAR AND CHILLY. NORTHWEST WIND 10-20 MPH...LOCALLY HIGHER GUSTS ALONG THE
EAST SLOPES.
.SATURDAY...SUNNY AND WARMER. NORTHWEST WINDS 10-20 MPH AND GUSTY.
.<   TEMPERATURES   / CHC. WETTING RAIN
 7000FT (SANDIA PARK)   22 52   /   0   0
REGIONAL DATA...
SANDIA/MANZANO MTNS
  RELATIVE HUMIDITY..... 80   22
  LAL..................... 1   1
  HAINES INDEX.............. 2   3
  10000FT WINDS............. NW22 NW20

$$

Sample: Afternoon Issuance of In-Season Fire Weather Narrative (cont.)

```
NMZ005-006-011>013-018-020-021-162100-
NEW MEXICO FIRE WEATHER ZONE 8
EAST CENTRAL PLAINS/WESTERN KIOWA GRASSLANDS BLM/ABZ-SNZ-
230 PM MDT FRI APR 16 1999

.TONIGHT...VARIABLY CLOUDY AND COLD. NORTHWEST WINDS 10 MPH.
.SATURDAY...PARTLY CLOUDY AND NOT AS COOL. WINDS BECOMING SOUTH TO SOUTHWEST WINDS 10-15 MPH.
.<                          TEMPERATURES   / CHC. WETTING RAIN
 CLOVIS                     30  60         /    0   0
 MORIARTY/ESTANCIA          16  55         /    0   0
 ROY                        20  52         /    0   0
 SANTA ROSA                 28  60         /    0   0
REGIONAL DATA...
EAST AND CENTRAL PLAINS
  RELATIVE HUMIDITY..... 80   25
  LAL................... 1    1
  HAINES INDEX.............. 2    3
  10000FT WINDS............. NW25 NW22

$$

.EXTENDED FORECAST...
.SUNDAY...FAIR SKIES AND WARMER. HIGHS UPPER 50S TO MID 70S MOUNTAINS AND NORTH WITH 70S TO MID
80S SOUTH.
.MONDAY...FAIR SKIES AND WARM. LOWS MID 20S TO NEAR 40 MOUNTAINS AND NORTH...UPPER 30S TO NEAR
50 ELSEWHERE. HIGHS 60S TO MID 70S MOUNTAINS AND NORTH...UPPER 70S TO NEAR 90 SOUTH.
.TUESDAY...FAIR SKIES AND BREEZY WARM IN THE NORTH AND HOT IN THE SOUTH. LOWS NEAR 30 TO MID 40S
MOUNTAINS AND NORTH...40 TO MID 50S SOUTH.  HIGHS 60S AND 70S MOUNTAINS AND NORTH...80 TO LOWER
90S LOWER ELEVATIONS SOUTH.

$$

FCSTR K.JONES
```

Figure 5 - Locations and Effective Ranges of New Mexico NOAA Weather Radio Transmitters

NATIONAL AGREEMENT

FOR

METEOROLOGICAL SERVICES

IN SUPPORT OF

AGENCIES WITH

LAND MANAGEMENT AND FIRE PROTECTION RESPONSIBILITIES

I. INTRODUCTION

This National Agreement is between the National Weather Service (NWS) and agencies with land management and fire management responsibilities signatory to this agreement. They are referred to in this agreement as “NWS” and "USER AGENCIES," respectively.

The User Agencies are responsible for the maintenance, improvements, and protection of the wildlands, of owned or held in trust by the United States. Accurate and timely weather information is required to manage effectively and efficiently this valuable national resource. The NWS has the expertise, organization, and legal charter to satisfy this need nationally. It is with this knowledge that this Agreement is entered into. Its purpose is to combine resources so as to best serve the needs of the public and to fulfill the obligations of the respective agencies.

II. AUTHORITY

This agreement is authorized under the Economy Act, 31 U.S.C. 686; . 15 U. S. C. 313; and 49 U. S.C. 1463; and the Cooperative Forestry Assistance Act 16 U.S.C. 2101, et. sec.

III. OBJECTIVES

The objectives of this Agreement are to identify meteorological logical services to be provided, establish the interagency relationships, and define financial and other obligations of the NWS and User Agencies.

IV. RESPONSIBILITIES

A. National Weather Service

1. Basic meteorological services will be provided during normal working hours in accordance with Operating Plans for designated NWS offices to the extent of NWS fire weather resources. NWS regional headquarters will identify to the User Agency headquarters a list of the designated fire weather offices on an annual basis. These services will be made available without cost and may include:

    a. Routine daily fire weather forecasts

    b. Outlooks and discussions

c. Weather observations

d. Red flag forecasts

e. Spot forecasts

f. Prescribed burn forecasts

g. Smoke management forecasts and information

h. Consultation and technical advice

2. Fire weather training

The NWS recognizes the need for training in fire weather meteorology for NWS forecasters. To the extent of available resources, the NWS will meet this need.

3. Special meteorological services

These services will be provided by designated NWS offices on a reimbursable basis as stated in Section IV B.

a. Weather observer training

b. Weather observation station visitations

c. Participation in User Agency training activities

(1) Course development carried out at User Agency facilities

(2) Classroom training

d. On-site meteorological services

e. Other special services

B. User Agencies

The following services and resources will be provided by User Agencies:

1. Fire-management computer systems

   Where existing fire management computer systems are locally available, access to the system will be provided.

2. Fire weather observations

   a. Provide daily surface weather observations and enter data into fire-management computer systems.

   b. Provide all equipment, equipment maintenance, an inspection of weather observing sites.

   c. Meet all travel and per diem costs associated with User Agencies' requests for visits of NWS personnel to weather observing sites.

   d. Provide for collection of remote automatic weather system data and entry into the fire-management computer systems.

   e. Provide observations for site-specific and other special forecasts.

3. On-site meteorological support

a. Meet costs directly associated with on-site meteorological support by NWS personnel. This includes costs incurred by the backup NWS office.

b. Provide logistical and weather observation support to NWS personnel at on-site operations.

c. Provide access to telecommunication services where available.

4. Training

a. Meet per diem and travel costs for NWS personnel participating in the conduct of User Agency training.

b. Provide technical assistance, instruction, and supporting material for NWS sponsored fire weather training sessions.

5. Other special services

User Agencies will provide logistics support and meet all overtime, travel, and per diem costs of NWS personnel associated with the provision of all other special services.

C. Joint Responsibilities

NWS and User Agencies shall prepare an annual operating Plan for individual fire weather office areas of responsibility. This plan will identify the basic weather services covered under Section IV.

V. PROCEDURES FOR REQUESTING SERVICES

Procedures for ordering services will be specified in Operating Plans for each NWS fire weather office.

VI. BILLING PROCEDURES

Costs to be recovered from User Agencies will be calculated on the basis of expense reports submitted to NWS regional headquarters by field personnel. Copies of expense reports will be forwarded to appropriate User Agencies by NWS regional headquarters. This procedure will enable agencies to accurately determine costs to be reimbursed during a given fiscal year. Billing of User Agencies will be accomplished by NWS regional submission of appropriate expense reports to the NOAA Reimbursables Division. Bills will include a statement of service rendered, dates it was provided, and location where provided.

All questions relating to billing procedures, changes, current costs, and individual expense reports should be directed to the appropriate NWS regional contact or the NWS Technical Monitor.

VII. AMENDMENTS

Upon written notice, the terms of this Agreement are subject to amendment at any time by mutual agreement of the parties.

The signatory agencies agree to consider expansion of this Agreement to cover areas of mutual concern, e.g., changing technology and improved procedures, as opportunities for such cooperation become available.

VIII. TERMS OF NATIONAL AGREEMENT

A. The terms of this Agreement shall become effective upon execution by NWS and any or all User Agencies and shall remain in effect until such times as the Agreement is terminated by mutual agreement. Any agency may withdraw at any time by ninety (90) days written notice to all parties.

B. This Agreement does not constitute a financial obligation for any party in excess of appropriations authorized by law and administratively allocated for the purposes intended

IX. TECHNICAL MONITOR FOR NWS

The NWS Technical Monitor for this Agreement shall be:

Fire Weather Program Leader (W/OM12)
National Weather Service
8060 13th Street
Silver Spring, Maryland 20910

DEFINITIONS

When the following terms are used in this Agreement or in an Operating Plan, such terms will have the meanings stated below.

A. **Fire Weather Office Operating Plan**. A procedural guide which describes the services provided within the area of a fire weather office's responsibility.

B. **Basic Meteorological Services.** Basic meteorological services are those state-of-the science meteorological forecasts, warnings, observations, and statements produced in a designated NWS fire weather office during normal working hours.

C. **Fire Weather Zone or District.** A fire weather district is the area of routine service responsibility as defined by the NWS. This area is usually defined by climatological factors, but may be modified somewhat to the administrative boundaries of the User Agencies.

D. **Normal working Hours.** Normal working hours are defined in the Operating Plan, but usually cover 8-hour workdays, Monday through Friday, except during fire season when the normal hours cover 7 days a week.

E. **Prescribed Fire.** Prescribed fire is a fire burning in wildland fuels according to a planned prescription and confined within planned boundaries for the purpose of achieving specific objectives of resource management. (Prescribed burning is the practice of prescribed fire use.)

F. **Red Flag.** a program which highlights the onset of critical weather conditions conducive to extensive wildfire occurrences.

G. **Special Meteorological Services.** Meteorological services uniquely required by User Agencies which cannot be provided at a designated NWS fire weather office during normal working ours.

H. **Spot Forecasts.** site-specific weather forecasts. They are issued upon request of User Agencies for wildfire, prescribed burns, or special projects.

I. **On-site.** That special service which dedicates a fire weather forecaster to a wildfire, prescribed fire, or special project such that the fire weather forecaster is removed from providing basic services at his/her assigned weather office.

Summary of Fire Weather Services in the Southwest Area

NFDRS Zone and Station Trend Forecasts

Area	Responsible NWS Office
Arizona...	
Southwest and South-Central	Phoenix
Northern	Flagstaff
Far Northwest	Las Vegas
Southeast	Tucson
New Mexico...	
North and Central	Albuquerque
South-Central/Southwest	El Paso
Southeast	Midland
West Texas	Midland

Routine Fire Weather Planning/Pre-Suppression Forecasts

Area	Responsible NWS Office
Arizona...	
Southwest and South-Central	Phoenix
Northern	Flagstaff
Far Northwest	Las Vegas
Southeast	Tucson
New Mexico...	
North and Central	Albuquerque
South-Central/Southwest	El Paso
Southeast	Midland
Texas...	
Southwest	Midland
West-Central	Lubbock
Northwest	Amarillo

(Continued next page)

Spot Forecasts

Area	Responsible NWS Office
Arizona...	
Southwest and South-Central	Phoenix
Northern	Flagstaff
Far Northwest	Las Vegas
Southeast	Tucson
New Mexico...	
North and Central (ABZ, TAZ, SNZ)	Albuquerque
South-Central/Southwest (GLZ and portion of LNZ from the Capitan and Sacramento mtns. westward)	El Paso
Southeast (Portion of LNZ covered by Pecos Valley Dispatch)	Midland
Texas...	
Southwest	Midland
West-Central	Lubbock
Northwest	Amarillo

Incident Meteorologists (IMET/ATMU)

NWS Office	IMET
Arizona...	
Phoenix	Bob Berokovitz
Flagstaff	Mark Stubblefield
Las Vegas, NV	Jim Harrison
Tucson	Gary Zell
New Mexico...	
Albuquerque	Chuck Maxwell
El Paso, TX/Santa Teresa, NM	Tom Bird
Texas...	
Midland	Greg Murdoch

****ATMU's cached at NWS Albuquerque and Prescott Fire Cache****

Specific contact numbers and other sensitive information are not contained in this online version of the operations plan. Please consult your most recent copy, or the SWA mobilization guide, for additional information.